CALIFORNIA ENERGY RESOURCES CONSERVATION

AND DEVELOPMENT COMMISSION

ENERGY EFFICIENCY COMMITTEE

PUBLIC WORKSHOP ON THE AB 549 PROJECT

Possible Mandatory Mechanisms for Improving Energy Efficiency in Existing Buildings

CALIFORNIA ENERGY COMMISSION

HEARING ROOM A

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SACRAMENTO, CALIFORNIA

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Reported by

Alan Meade

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A P P E A R A N C E S

COMMITTEE MEMBERS PRESENT

Robert Pernell, Commissioner
Art Rosenfeld, Commissioner

STAFF PRESENT

Al Garcia, Advisor to Commissioner Pernell
Bruce Ceniceros
Randel R. Riedel
Elaine Hussey
Residential Buildings and Appliances Office
Nancy Jenkins, PIER Buildings Program
Bill Pennington

ALSO PRESENT

Lynn Benningfield
Cynthia Austin
Shefali Modi
Heschong Mahone Group
Tony Pierce, Southern California Edison
Lisa Fabula, San Diego Gas & Electric
Len Bardsley
Abdullah Ahmed
Southern California Gas Company
Dale Gustavson, Air Conditioning Contractors of America
Mike Hodgson, ConSol, California Building Industries Association
Manuel Alvarez, SGE
Ted Rieger, Indoor Comfort News
Devra Bachrach, Natural Resources Defense Council
Paul Dudley, Bristolite Industries
Cal Broomhead, City and County of San Francisco
David Calabrese, Association of Home Appliance Manufacturers
Bobbi Glassel, Sacramento Energy Service Company
Tom Hamilton, CHEERS
Tom Riley, Cogent Energy
J. Patrick Quinn
Anne McCormick, Newcombe Anderson

I N D E X

P R O C E E D I N G S

COMMISSIONER PERNELL: Good morning. I want to welcome everyone, and thank you for taking time out of your busy day to share some of your knowledge and experience with us today. The AB 549 Project -- that's what we're calling this -- basically was some legislation that kind of directed us to do a study on existing buildings.

And we're investigating ways to reduce energy consumption on existing residential and non-residential buildings. And this is the second -- and I know Bruce is going to tell you this -- but this is the second of three workshops that we're going to have.

The electricity shortage of 2000-2001 kind of underscores the critical balance that we have between supply and demand in California. All of the new buildings in California are much more efficient than those built before we had the comprehensive building standards.

And so what we want to do here is try to identify some energy savings on existing residential and non-residential buildings. We hope that AB 549, the process, yields some new and creative solutions in this area, and we view this

as a very important effort, and again we value your input.

With that I -- by the way, my name is Commissioner Pernell, I chair the Energy Efficiency Committee; my colleague, Commissioner Rosenfeld, is also a member of that Committee. And I will just ask the Commissioner if he has any remarks at this time?

COMMISSIONER ROSENFELD: Just welcome.

COMMISSIONER PERNELL: All right. At this time we would like to turn the workshop over to Bruce, who will be conducting the workshop today. And this is kind of informal in that we want to hear from you. You can relax, this is not so structured, you know, we're just common folks up here. And no idea or no question is a bad one. So let's just try and flesh this out. With that, Bruce?

MR. CENICEROS: Thank you, Commissioner. My name is Bruce Ceniceros, I'm the Project Manager for the AB 549 Project. Thank you all for coming today, and thank you for those of you who are returning after helping us out with some good input from the first workshop.

We definitely used that input, and it

was very informative for helping us develop some of the conclusions and some of the future work which we have still yet to do. So we're looking forward to getting some more good feedback from you today.

Please, those of you sitting in the back seats there, feel free to come up to the table here. If you have to come and go, don't worry, we'd rather be able to see the faces and have better access to the microphones, and encourage you to chime in when you have some thoughts.

As Commissioner Pernell mentioned, this is the second workshop in a series. And this one today is focusing primarily on measure and strategies that may be appropriate for some sort of regulatory mechanisms, new codes and standards, or just a requirement that information flow be facilitate in some way to help private market transactions do a better job at reducing efficiency in existing buildings.

We will have a third workshop probably early next year. That will focus on the purely voluntary kinds of strategies and mechanisms for improving efficiency in existing buildings. So while it may seem that we have some kind of

predisposition today for the regulatory approach, please don't get that impression.

This is just a small part of the work we have to do. And I'll explain why we're putting some more emphasis on this today a little bit later.

Let's see, I'd like to go around and do some introductions, but first let me get some of the preliminaries out of the way here. You may have noticed that the bathrooms across the way here are not available right now, I think they're being painted.

There are bathrooms back around behind the security desk and around the corner to the right there that are also available. Those are open.

If anyone wants to make a comment please find a microphone if there is not one next to you, and speak into the microphone. We need to pick up your voice for the record, and also for those people who may be listening in on our realtime audio stream on the Internet.

And each time you do have something to say please state your name and the company or organization that you work for, for Alan over here

who has to make some sense out of everything we say later on. He'd very much appreciate it, and we'll probably be reminding you often to do that, but it would really help us out.

So why don't we go ahead and go around the room, and state your name and your organization for us please.

MS. BENNINGFIELD: I'm Lynn Benningfield with the Heschong Mahone Group.

MS. AUSTIN: I'm Cynthia Austin, I'm also with the Heschong Mahone Group.

MS. MODI: I'm Shefali Modi, I'm also with the Heschong Mahone Group.

MR. PIERCE: I'm Tony Pierce with Southern California Edison.

MR. BARDSLEY: Len Bardsley, Southern California Gas Company.

MR. AHMED: Abdullah Ahmed, consultant to Southern California Gas.

MR. HAMILTON: Tom Hamilton with CHEERS.

MS. GLASSEL: Bobbi Glassel, I'm an energy efficiency service company here in Sacramento.

MR. DUDLEY: Paul Dudley, I'm with Bristolite Skylights.

MR. CALABRESE: Dave Calabrese with the Association of Home Appliance Manufacturers.

MS. BACHRACH: Devra Bachrach with the Natural Resources Defense Council.

MR. GUSTAVSON: Dale Gustavson with the Air Conditioning Contractors of America, California state chapter.

MR. RILEY: Tom Riley with Cogent Energy.

MR. HODGSON: Mike Hodgson with ConSol, representing the California Building Industry Association.

MR. BROOMHEAD: Cal Broomhead with the city and county of San Francisco.

MR. GARCIA: Al Garcia, I'm Commissioner Pernell's Advisor.

MR. RIEDEL: Randel Riedel, California Energy Commission.

MS. HUSSEY: I'm Elaine Hussey, I'm part of the AB 549 Team here at the Commission.

MS. FABULA: Lisa Fabula with San Diego Gas & Electric.

MS. JENKINS: Nancy Jenkins, Commission's PIER Program.

MR. ALVAREZ: Manuel Alvarez, Southern

California Edison.

MR. RIEGER: Ted Rieger, Indoor Comfort News.

MR. CENICEROS: Let me try and restate everyone's names and affiliations, just for the record here. We've got Elaine Hussey from the CEC; we have Lisa Fabula from San Diego Gas & Electric; Nancy Jenkins from the CEC, and Manuel Alvarez from SGE; and Ted Rieger from Indoor Comfort News.

Great. Thank you all for coming. I'm going to go through a very brief introduction here. Let's see. To give you just enough background so you understand where we are in the process right now -- again, this is focusing on mandatory measures.

And we talked a little bit about the purpose of the AB 549 Project here. The Legislature has asked us for recommendations in this area, and we plan to supply those probably around October of 2005 -- a little bit shifted time schedule due to some challenges in getting some resources secured in this current budget environment.

I did want to remind everyone, we know

there's a whole lot of efforts out there right now in energy efficiency, focusing on existing buildings, and they're doing a lot of good things. We just recognize that there is a lot of potential left to be examined and achieved in existing buildings.

And so what we're trying to do with the AB 549 Project is not duplicate or really evaluate per se any of these existing activities, but just look for ways to find areas that are currently outside of the scope of these activities, other ways of tying things together.

We may find that will have new standards that, like the Title 24 building standards for new buildings, and also touch on some improvements in the way of renovations and additions. We may have some kind of new standards that require certain things to be done in existing buildings at some type of trigger event, and we'll get more into those recommendations today, plus possible recommendations for new market programs.

Maybe things that the PUC should be doing, areas they're not currently looking at. Maybe some things that we want to encourage the private market to do more of, and facilitate

things so that they can do those things more easily, such as building performance contracting.

And this just kind of shows where the work of the Heschong Mahone Group, our consultants for this project, where their work fits into the overall project. They are doing for us the things in blue, characterizing the market -- which they presented in the first report. That was available on the table and by e-mail, called Markets and Potential.

And now they are examining the mandatory strategies that we might consider for existing buildings. And what we hope to do on a parallel track was look at the market-based strategies, but again, because of delays in getting resources, that's actually going to happen after HMG's work is completed.

Starting early next year we have some funds that we can now go out with a contract and secure the skills needed to do that work. That is a little backwards, I would have preferred to do the market-based strategies first, look at everything globally and then pull out the things that might be most appropriate strategies, but because of the nature of the funding sources,

which is the utilities codes and standards support funding that funded the HMG contract, we had to do that first, while all the resources were available.

And so we're going to make this work. But after we've done both of those tasks we're going to then develop policy options, always looking first at the things that make the most sense from a market-based approach, and then looking at things that can really augment the effectiveness of our overall package of recommendations.

That might require some kind of regulatory assistance or intervention of some sort. And after that we'll put those recommendations into the report to the Legislature.

So why are we looking at mandatory strategies at all? First of all, AB 549, the language in the bill, makes it very clear that that was the intention of the bill author and the Legislature who passed it. And the Governor.

California has Title 24 standards that address new buildings, then they go and say we need to look at existing buildings. And there are

other references in the bill that make it obvious that we can't ignore regulatory approaches to improving efficiency.

We haven't really looked at all the possible ways you can do this for existing buildings, so there are a lot of new areas we can look at here. And because of California's aggressive efficiency goals we need to look at all available means to achieve those goals.

Also, as we saw with standards for new buildings in Title 24, it is a very low cost way to generate very large savings. All the programs that are focused on existing buildings right now usually involve incentive monies and take a lot of effort, and we're really working customer by customer, whereas a standard that's well thought through can achieve a lot of savings without that kind of investment.

And then once the utility programs have gone through and made improvements in most of the facilities in California, you've got this, you know, looking at the adoption curve for any new technology or measure, you've got what they call the laggards on the tail end there, that just about nothing will get those people to move except

a standard. So that's one way to address that group.

And also, requirements can provide information at key times in the life of a building, such as when a home is sold to the buyer, or when it's leased to the tenant. It can allow them to do things that they wouldn't be able to do without that information. Some times you need some kind of regulatory fix to make sure that information's conveyed at that right time.

So that's why we're looking at this stuff today. I want to introduce Cynthia Austin now with the Heschong Mahone Group. Actually, I'm going to introduce Tony Pierce next, with Southern California Edison, and he's going to say a little bit about the case project, and why they are doing this stuff. And I'll go ahead and cue up your presentation, Cynthia.

MR. RIEDEL: Bruce, can you manage the lights?

MR. CENICEROS: Oh, yes, sorry about that. I'll get that after Tony's done.

MR. PIERCE: Okay. While Bruce is bringing that up, I am Tony Pierce with Southern California Edison, and I get to introduce Cynthia

Austin. Bruce already mentioned, but I just wanted to give everybody a little bit of background, if you're not aware.

The investor-owned utilities have a file program with the Public Utilities Commission called the Codes and Standards. The impetus of the program is to look for codes and standards enhancements that are cost-effective, and to work with the Energy Commission and other code-making bodies to implement those standards.

As I said, this is an IOU program. Some of my colleagues who have already introduced themselves that are here today are Len Bardsley with the Gas Company, and Lisa Fabula with San Diego Gas & Electric, and PG&E couldn't make it today.

Shortly after the bill was signed into law we started discussions with the Energy Commission and looking at ways to support this legislative mandate to the Commission. In 2002, at the ACEEE Conference, we held a forum and started to investigate some of the ways that we could support the Commission.

As a result of that forum and other subsequent meetings, the IOU's accepted a project

where we brought HMG in to do some initial reporting investigations on cost-effective measures and events for existing building energy efficiency and peak reduction opportunities.

And so what the HMG team is going to present to us today is the result of the latest report. So with that, Cynthia, please?

MS. AUSTIN: Thank you, Tony. I'm going to give a short overview, first of all, of the AB 549 support project, and then go into the overview of the events and measures report.

The purpose of the AB 549 support project is to provide research, analysis, and recommendations on cost-effective, market-ready regulatory approaches and strategies.

The project is divided into three reports. The first report markets the potential. It identified characteristics of the existing building market so as to identify potential areas of opportunity for saving energy in existing buildings. This was made available today in paper form here at the workshop, and also is on the AB 549 website, handled by the Commission.

Today's workshop will be discussing the events and measures report in detail, and this

report provides key events in the life of an existing building that are opportunities for energy efficiency improvements, and provides a list of promising energy efficiency measures and potential mandatory mechanisms that can be used to enact those measures.

Also listed is the comprehensive strategies that are suggested for further research. In November a final report on the support project will be written, and that will include the detailed recommendations, along with savings potentials of those recommendations.

Now the first report, markets and potential, we identified some key major findings. We found that the majority of the existing building market is dominated by older buildings constructed before Title 24 was enacted, resulting in a wide disparity of energy efficient construction standards between newly constructed buildings and existing buildings.

Some statistics are that 62 percent of commercial floor space was built before 1978. And over 70 percent of single family buildings were built before 1982. So you can see that there is a large potential for energy savings that we could

do in this market.

And because of these potential energy savings, it justifies further research into the expansion of authority, potential trigger events, and other strategies to bring about an improvement to the existing building stock.

Now for the events and measures report we had to come up with a framework for how to look at coming up with a list of measures and strategies. So we decided to try and come up with the criteria for what would make a successful regulatory mandate.

And using this criteria we formed a way of how to put measures in context, and I will go into this in detail in the upcoming slides.

In many cases specific measure requirements are only feasible in the context of a specific type of event. Typically, when a component or system is altered or accessed there is a prime opportunity to consider an upgrade of related feature.

The example I'm showing here is the installation of a cool roof, cost-effectiveness would depend on when you're doing the installation. While it might be cost-effective

when you're replacing a roof it might not be as cost-effective when you're doing a sale of a home.

Another thing to consider when you're coming up with a list of measures is the available mechanism. In many cases there are already mechanisms in place that can be utilized to improve energy efficiency in a building, whether or not these mechanisms directly deal with energy efficiency.

Obviously the appliance efficiency standards and the building efficiency standards are mechanisms that deal directly with energy efficiency. In other instances regulatory mechanisms exist, but does not currently address energy efficiency.

For example, in the sales transaction of building properties, the seller is required by law to disclose certain information to the buyer, such as defects in the property, hazards, liens, and title history.

If a seller was required by law to disclose a building energy efficiency rating at time of sale, similar disclosure mechanisms could be utilized. The basic point is that it is simpler and less costly to leverage an existing

process than it is to create a new one.

Another thing to keep in consideration is stakeholder support. Measures must be cost-effective, market-ready, and have a clear implementation path in order for stakeholders to support a mandated change aimed at the existing building markets. Affected groups must have the opportunity to air their concerns, and to have them addressed.

For a cost-effective measure or set of measures to be implemented during a given trigger event the trigger must be well-defined. We grouped trigger events into five types. Each event is defined in more detail in the report, and I will be discussing a subset of these events during the measure discussion period this morning.

Type one events are triggered by the recording of a title, or the shift in primary occupants. This can be seen in the sale of a building, the lease, rental, or when it's refinanced.

Type two events are triggered by the requirement of a building permit, as seen in alterations, additions, equipment or component replacement, change in occupancy type, or change

in status from unconditioned to conditioned space.

Type three events are triggered when building components are accessed, as occurs in a repair, commissioning a retrocommissioning, or scheduled maintenance.

Type four events are triggered when site visits to the building are made, as in an inspection or energy rating, an appraisal, or an energy efficient mortgage evaluation.

And lastly, type five events occur when meter data is gathered or evaluated, whether when in participation in a utility program or response to an inquiry or rate change request.

Now a candidate measure or strategy needs a mechanism where there is a clear and established authority. The lines of authority for current mechanisms may need to be re-evaluated in the context of a specific candidate measure or set of measures. If the authority is unclear or lacking, steps must be taken to establish that authority or find another workable mechanism.

In the appliance efficiency standards it applies to certain appliances manufactured for sale in California not currently covered under federal standards. There are currently two

rulemaking proceedings underway to update the appliance standards.

Expanding the authorities, where feasible, of the appliance standards to include other building components and equipment is potentially a direct and relatively unobtrusive way to improve the efficiency in existing buildings. The mechanism is clean and clear, the number of units replaced per year determines market saturation.

Within the building standards the CEC has the authority to establish standards for building components and systems that are installed in construction for which a building permit is required.

Updates to the building standards can be expanded in scope to include more requirements that apply to alterations in existing buildings. Examples of this can be seen in the proposed 2005 standards, with duct testing and sealing and residential windows.

Another type of regulatory measurement is local adopted ordinances. Cities and counties often have goals for the community that serve as motivations to reduce local energy use. Local

governments represent unique subsets of the state and are more likely to adopt measurements and strategies that are more difficult to adopt statewide, such as in climate dependent measures.

local pilot programs help refine procedures and methods to support a statewide mandate, and encouraging the adoption of local efficiency ordinances through technical support may work best as an initial step prior to the implementation of statewide mandates.

Voluntary mechanisms is another type. I wanted to mention it here in the beginning even though it is not in the AB 549 support project scope, but the point here is that it can be used as a step for a later statewide mandate. It sets the stage and helps also for refining procedures and implementation procedures.

In the upcoming morning discussion period we will be discussing the suggested measures in the report either that are appropriate for regulatory mandates-- either in the near-term or the long-term. We will first review the potential trigger events that compliment a regulatory effort and then go into the discussion.

In the afternoon discussion period we

will explore a set of strategies that we feel have a strong potential for increasing the energy efficiency of existing buildings. For the short-term the strategy consists of utilizing current mechanisms, and for the long-term the strategy consist of developing new regulatory mechanisms.

And here is the list of the strategies that we'll be proposing today, and this is also in your agenda.

So Bruce is going to bring up the other presentation, in which I will give basically a short introduction of the list of measures that we have.

So this first portion was basically a short overview of the thought process, of how we want you to basically look at the measures, and when you're formulating your responses to think about all these different contexts. We found that a lot of things are integrated when you're trying to formulate a list.

And one of the important details to keep under consideration is when a measure can be triggered, what type event do you use? Trigger events under consideration for mandated measures were chosen because an enforcement mechanism

already existed for those events.

Specifically, we look at type two events in which a building permit is required, and a type one event, such as building sale, refinancing, lease or rental of a space.

The enforcement mechanism of type two events is a permit process involving application and inspection. The permit process is familiar ground with the Title 24 standards, so for the most part measures considered for this event are within current CEC authority.

Sale of a building already requires a series of inspections and recording of legal documents pertinent to a specific property. Although the CEC does not have current regulatory authority in this area such permission authority can be obtained from the Legislature. In cities and counties measures could be mandated through local adopted ordinances.

Building refinance does not involve an ownership change, and so provides an opportunity for a building owner to leverage additional funds to make energy efficiency improvements. Home energy rating, or HERS rating, could provide value in this area.

For multi-family or commercial buildings the sub-lease or rental of a space could provide the opportunity for mandates in specific cases. During this event legal documents are typically exchanged between the owner and the tenant, and typically inspections are performed to document the condition of a space before the tenant takes occupancy.

Individual prospective measures were selected based on performance in utility programs, statewide incentive programs, program pilots, and building rating protocols developed by industry consensus.

Now before we begin the discussion period I want to briefly explain how we're going to handle the procedure for the discussion. Handouts of the measure review table -- there should be three of them -- were made available at the beginning of the meeting. They look like this, they kind of list the measures on the right and the different events are on the top.

There are three tables, one for single family, one for multi-family, and one for commercial. I will be introducing each sector and then comments can be given. For each table,

measures that could be mandated through a specific trigger event are listed. Also, keep in mind that different application scenarios would yield different savings and cost-effectiveness results.

There could be different conditionalities, or different clauses, of how a measure could be implemented, and how that would affect its saving potential.

Measures are grouped into six sections. The first three -- integrated measures, HVAC and lighting -- will be on one slide, and then the last three -- building envelope, water heating and appliances -- will be on the second slide. I divided them into two slides for better viewing.

The tables are intended to spark further discussion, analysis, and prioritization. We also only have the morning to discuss this, so please keep your comments as succinct as possible. Also, measures that are currently being done in the standards or for the proposed 2005 standards, are not considered a candidate measure.

Candidate measures are the cons that we listed with an X in the tables, and we felt -- in discussion with the IOU team and the CEC staff it came up as what we felt were good opportunities

for savings potential.

However, I'm looking forward to hearing what everyone else would think of what would be a good measure, what wouldn't be a good measure. If you disagree with where we put our X's I'd like to hear that too. So why don't we start with the single family sector.

MR. CENICEROS: And you might want to add one more point of clarification there, because there's information that we did not include in the handouts here, just for readability, that is in the report.

There's a comment section that says "certain measures would only make sense during certain situations or trigger events," such as cool roofing material would only make sense to put on the roof if the roof was being replaced at that time anyway, is one example.

MS. AUSTIN: And for single family we considered three events which we felt had the most potential -- alteration, sale and refinance. So that makes up our three columns for the single family measure review table.

So here is the first portion of the table, where we have the integrated measures,

HVAC, and lighting measures. So if anyone would like to make comments at this time?

MR. BROOMHEAD: I have a couple. Cal Broomhead, city of San Francisco. A couple of questions. One is, are you assuming in this, before we take a close look at it, that single family homes are owned? Because we have a large number of single family homes that are actually rented in San Francisco.

MS. AUSTIN: Yes. And actually, if you look at the markets and potential report, you know, we take that into a fact, but we've found at least that the opportunity for causing improvement were more common in these three events.

Yo can do it for all the types of events that we had, but to limit -- you can see that we have such a number of measures, and to look at the 12, 15 different events that we considered we decided to, let's look at the best three.

MR. BROOMHEAD: And then for housing units that are two to four units in a building, are you considering them single family or multi-family?

MS. AUSTIN: I think we're -- we have a multi-family table, and I think that would be

better suited for the multi-family table.

MR. BROOMHEAD: Okay, that's fine. Thank you.

COMMISSIONER PERNELL: Commissioner Pernell. On your integrated measures, are you suggesting that a HERS rater inspects a property twice? Is that why we've got -- you've got HERS rating, and then you've got HERS rating in building upgrades, so --?

MS. AUSTIN: We'll either have a HERS rating done, and then the second one is when you actually make improvements based on the HERS rating.

MR. CENICEROS: So one is just evaluating opportunities, and the other one adds to the evaluation the actual implementation of some of the recommendations.

COMMISSIONER PERNELL: All right. And have you considered the cost of that, to have the HERS rating done twice?

MS. AUSTIN: Well, it's not coming up twice. It's more -- a different type of measure. So you can either have the HERS rater come, and you can, you know, decide to do their recommended improvements.

MR. BROOMHEAD: So you could decide that, once a HERS rating is achieved, then that particular structure doesn't have to file a certificate for the next ten years or something before HERS would then be required again?

MS. AUSTIN: That's one of the ideas.

MR. BROOMHEAD: And you could figure out what that time frame was.

MR. CENICEROS: And it should also be noted that some of these things might ultimately be required only for certain types of homes, say of a certain age or ones that don't have certain things already done to them, like insulation in the walls or too little in the ceiling.

There are a lot of caveats that you could put on, and then these requirements might make sense to do. And we're not looking at all those caveats here, we're just looking at whether the measure, in some instances, might make sense.

MR. HODGSON: Mike Hodgson, CBIA. In order to kind of prioritize which measures seem to have a bigger impact, just glancing at your market potential, is there a description of what impact, if we do these savings, would have on the marketplace? I see that there are a number of

units, and a pie chart breakdown.

But if you take the number of units and put R30 ceiling installation, do yo save, you know, 400,000 KW? I don't know, is there that kind of analysis so we could weight which items would be more cost-effective to do?

MS. AUSTIN: Well, that's actually what we were hoping to hear at the workshop, a savings potential portion of the AB 549 support project is supposed to come after the workshop, based on what we're hearing from the participants today.

MR. HODGSON: Okay. But how do we make reasonable choices if we don't know what potential is there, based on what you found the market to look like?

MS. AUSTIN: Well, in the markets and potential report we do have, based on different end uses, we signed a report done by Kema Xenergy for Pacific Gas & Electric, that looks at the potential in the residential and the commercial sector, of what the potential could be for the upcoming years.

And obviously lighting and heating, lighting in residential was the top end use, heating was the best for demand reduction.

The commercial sector I think is -- okay.

MS. BENNINGFIELD: Mike, I think maybe we should back up here and say what we're trying to do here is put everything on the table. We don't know what flavor or color it's going to be necessarily yet, but we want to make sure we have the bases identified.

And we're going to use this saturation data once we get a specific measure defined. For example, is the HERS going to be just information only? If so, it probably won't save any energy. If it's have the rating and install X, Y, Z measures, if they're not present, then we can quantify that energy savings based on vintage of home and so on and project it out statewide.

So this process isn't really necessarily to rank from, although we would like people's opinions about feasibility, you know, likely savings. And if you can give us some more information about under what conditions they'd be more cost-effective than others, you know, then we'll take that into consideration too, so --. Is that --?

MR. CENICEROS: Yes, this is really just

a first filter. If we looked at all the measures on these tables we couldn't really realistically do cost-effective analyses for all of them. What we're trying to do is filter down the ones that seem to have most potential, based on everyone's gut feeling or experience in the field, or that are what Cynthia referred to.

And then, with that smaller list, we'll go in and look at cost-effectiveness in the next step.

MR. HODGSON: Yes, and I'm not trying to look at cost-effectiveness, I'm just trying to figure out where is the potential savings. And is it within the scope of your work to figure out where that is, so that we can be directed?

You know, should we insulate all the windows, should we insulate the ceiling, or, you know, that's kind of what I was looking for was some guidance as to say, and then try to figure out how to get there. But I was just wondering -- and the status of existing housing site.

COMMISSIONER ROSENFELD: This is Art Rosenfeld. I'm sort of with Mike, I see a close connection between conservation supply curves from PG&E -- which you mentioned, Cynthia -- and this.

Now of course the supply curves have both, the X axis is energy, and the Y answer is the cost of conserving energy, so both are addressed. And I have those books on my desk, but that doesn't mean I remember all the categories.

They do in fact look at retrofit as a set of measures, right? So one can look at either the summary document, which is the energy foundation document called The Secret Surplus, or the PG&E documents.

And they have, I don't know, they have 270 measures, of which I think half are retrofit. And they do give the potential, and they do give the cost to conserve energy. So I guess you folks are going to pour over that document a lot, huh?

MS. BENNINGFIELD: Yes. If it's the same report I'm thinking of it's more global in nature. It says the potential is X gigawatts and, you know, here's our laundry list of things that includes.

But it doesn't say -- and it applies to this particular vintage of homes and this particular climate zone -- does it give that detailed level of data?

COMMISSIONER ROSENFELD: Yes, I mean the

totals are made by something over individual thousands of instances.

MR. GARCIA: Art, this is Al Garcia. I think that information is contained in the, it used to be called the Residential Appliance Saturation Survey, and it breaks down the appliance saturation, and then they've extrapolated from that, and I think that's the report you're talking about?

COMMISSIONER ROSENFELD: That's right. These reports start with the saturation surveys, and then they calculate the cost of conserved energy and eligibility for access and stuff like that.

MR. GARCIA: Yes, exactly.

COMMISSIONER ROSENFELD: And so it's pretty thick. But they're on the PG&E website. And the summary document is on the Energy Foundation website.

MR. HODGSON: I'd appreciate your assistance, Art, in finding that. It sounds like a useful document.

COMMISSIONER ROSENFELD: Lunchtime.

MR. HODGSON: Thank you.

MR. BROOMHEAD: Mike, it's also on the

Cal Mac website.

MS. BENNINGFIELD: We could probably put those up as reference documents. Maybe on the 549 site as well?

MR. CENICEROS: Yes, I think so. I also want to point out that there's a lot of background in the markets and potential report, which is also the information I was presented at the last workshop in July that gave us a lot of direction in terms of where to focus in terms of measures, as well as types of housing which trigger events also. So we have information to get to where we are right now.

MR. GARCIA: Bruce? Is the Xenergy report on there too?

MR. CENICEROS: It's not on our website. It's in our references.

MR. GARCIA: Maybe you ought to put a link on there?

MS. BENNINGFIELD: Yes, that's in our list of reference documents to look at. I think that the potential that's quantified in those reports is, you know, if everything were upgraded, and what we're looking at is the first baby step. Where do we start and what do we require and under

what conditions do we require them?

And so we've got this big potential balloon out there, where do we start in terms of the regulatory process to kind of chip away at it and make it fully realized.

COMMISSIONER PERNELL: Commissioner Pernell. Let me just ask a question in terms of -- and I know we're right at the beginning of this, but the reports that were mentioned, are those going to be, somewhere down the line, incorporated, so that -- and I would agree with Mike -- so that the more cost-effective realistic decision on the measures can be made?

And to say we've got these reports out here and you can get them here and there and all of that, I'm just wondering whether or not, is that something that the consultant team is going to bring together to be able to have the stakeholders, you know, do a better recommendation.

Because if you, you know, I've heard three different reports. Most of them are on Art's desk -- so I'm just, it's more of a recommendation I guess to followup on what Mike was saying, is that at some point we have to get

on with the data, put it together, and come out with something that -- or at least some recommendations -- that would, I would think would say "if you use this set of measures, you're going to save this much energy."

And I think, at the end of the day -- and we don't have to do this now -- but I think at the end of the day that's the type of report that legislators would want to look at. Because they're not going to read no big stack of four or five different reports.

MR. PIERCE: Tony Pierce with SCE. The last task of the IOU project that HMG is working on is to do just what we're describing here. When we constructed the work scope the feeling was that we needed to work with staff and have these workshops and solicit input from stakeholders on which measures that we, as a consensus, felt were viable in the current build environment.

And then look at the potential, both energy and demand savings, of those measures as the last task. So the questions are greater, and that task is part of the work project, and we'll be working to complete that in the next 30 to 45 days, on the measures that basically come out of

this workshop.

MS. BENNINGFIELD: And if I can direct everyone, this is Lynn Benningfield, to this markets and potential report. If you turn to page 19 that is where we graphically show the savings potential by end use in the residential sector. And this is taken directly from the report that you referenced.

So for example, in air conditioning energy, the potential is shown there on the bar graph. And the two graphs are technical versus economic potential. But these have a lot of assumptions and presumptions behind them, and what we're trying to do is craft something that might be implementable in the near term and save, you know, somewhat of a fraction of this.

So this will be the pie that we'll be looking at, and things that come out of this process we'll be assigning savings to them, so there will be some subset of this.

COMMISSIONER ROSENFELD: But, one last comment. This is 80 percent, getting it written down. On the other hand, if you look on page 19, you see that the potential for lighting is huge, and the potential for water heating isn't so big.

But it may be that wrapping a water heater is very, very cheap, and very effective, and that the lighting itself is harder to do. So the point about the reports that we keep discussing, and I will bring them in after lunch, is that they also give a cost per conserved kilowatt hour, or per conserved therm, and we need to bear that in mind.

MS. BENNINGFIELD: Okay, great.

MR. AHMED: I want to make a comment, A.Y. Ahmed, consultant to Southern California Gas. I just wanted to point out that, in the market potential analysis we should consider two things.

One, the longer changeouts that have been occurring in the market by the homeowners; and number two is the utility sponsored programs. The utilities have almost 50 years of conservation in the existing market, and they have been doing this, and we need to know what has been achieved and what kind of measures the utilities have successfully implemented.

And that should also include the low income programs, those are the most energy consuming homes. And we need to at least subtract that out from the market potential and consider

that. I hope that's going to be done.

MR. HAMILTON: Tom Hamilton with CHEERS. My question may indicate my lack of knowledge in this, but I would counsel that determining cost-effectiveness of the measures is less important than how do the measures get installed? It's fairly easy to determine that, if a house that has no attic insulation in Fresno, and you put in R38, it's going to save X amount of energy.

There's been, you know, thousands of studies, all the 2005 building standards work that's being done. But the real issue is how do you get the insulation in the attic, and what does it take to get it in the attic? Is it, you know, working with realtors, home inspectors, appraisers, whatever?

I think that's more important than focusing -- certainly knowing what measures, but it's also, I don't think you want to dovetail or tie in specific measures to a particular home.

I think the goal would be, instead of saying "here are the five things that should be installed" it should be "here's how much we think should be saved", 30 percent or 50 percent, whatever it takes to get to that 50 percent

savings is a good thing, and here's a list of recommended measures that could do that.

I would like to see more -- and I think you've covered some of it -- how do we get it to where we can get the measures installed?

MR. CENICEROS: Okay, thanks, Tom. Any other questions on other tables before we move into --? Okay, Dale.

MR. GUSTAVSON: Dale Gustavson, Cal-ACCA. On the table, the table itself for single family measures, not very far down the page is refrigerant charge and air flow emission rates. And I would like to suggest that, in light of the fact that the technology already exists in the marketplace, that we might want to add capacity measurement and efficiency measurement, or capacity and efficiency index.

There are different -- or, wrap all of them into something called advanced portable diagnostics. And then define that a little more clearly as a subset. But refrigerant charge and air flow measurement is sort of the tip of the technical iceberg right now, in terms of what's available.

MS. BENNINGFIELD: Okay, thank you.

MS. BACHRACH: Devra Bachrach with NRDC. I'm interested to hear a little bit more about whether you considered the point of utility hookup as a trigger event. It's not included on these three, and by hookup I mean when the new homeowner or the new renter calls the utility to set up their account.

MS. BENNINGFIELD: We do have that identified as a trigger, and we felt it was better aligned with the voluntary event. Although it is conceivable that a utility could require something be installed in order to receive a new meter. This is something that's going to take some voluntary action before it becomes feasible as a mandate.

Do we have any other comment on the single family?

MS. AUSTIN: Should I move on then? This is the last three sections in the single family table -- building envelope, water heating, and appliances.

MR. CALABRESE: Dave Calabrese with AHAM. I just wanted a point of clarification, I may have missed this, but when there isn't an X in the box and I'm interested in a refrigerator on

down, what is the status of those measures then?

MS. AUSTIN: I believe it's because the federal standards probably will take more effect in those cases, so we didn't want to have to deal with any preemption issues, and that's why it doesn't currently have an X. And I think that's listed in our report, under the conditionality clauses.

MS. BENNINGFIELD: And I might add that also it's strictly not cost-effective to require a replacement of a refrigerator at the time of sale, so we wanted to list every measure that was popular, and we only have the X's on the ones that we consider to be feasible.

If there's anybody who has interest in adding additional X's, we'll put them on the plate again. But refrigerators dropped out quite quickly at that trigger. It's interesting to note that the group is kind of going through the same thing we went through.

There's things that are cost-effective to do in all cases, there's things that are cost-effective to do only in certain areas or only at certain times or only if certain mechanisms are in place. Only if certain diagnostics are available.

So a lot of these are very conditional, so it's difficult to put them up there like this without a lot of qualifying.

But I think it's a good way of starting. It's sort of the last opportunity for you to give us some input on specific measures you'd like to see. In the afternoon we'll be talking about a little more integrated strategies.

MR. BROOMHEAD: Cal Broomhead. I wanted to ask, refrigerators are not cost-effective? What were the assumptions --?

MS. BENNINGFIELD: If a working new refrigerator is present at the single family house at the time of sale, yes it's not.

MR. BROOMHEAD: A working new refrigerator. Then if it's one that's ten years or older, then --?

MS. BENNINGFIELD: Right. If there's one ten or 15 years old, our thinking is it's likely to be replaced in a certain period of time anyway, so you don't necessarily need a trigger of a sale of a home to capture those last couple of years.

it might not be worth the effort of going through the regulatory hurdles just to

capture that last bit of savings. Maybe the homeowner might do it on their own anyway for various reasons, or maybe it will end up being replaced through a utility program, or maybe it will just die and need to be replaced at some point.

MR. BROOMHEAD: Okay.

MR. HODGSON: Cynthia, a clarification again on the X's. I'm not sure what's cost-effective and what's -- I mean, I think we're just trying to identify opportunity, right? I mean, if the X is in the box then that's an opportunity that we should explore. That's the intent here?

MS. AUSTIN: Yes.

MR. HODGSON: Then I would like to back up, because I think there should be some X's on alterations. if you do an alteration you should look at the duct insulation, which is on the first three groups. I'd add an X there.

If you're doing an alteration you should also should look, I think, at the window U Factor, and the window solar heating coefficient.

MS. BENNINGFIELD: Mike, are you talking about the HVAC alteration, or any kind of alteration?

MR. HODGSON: Any kind. Alteration I presume meaning getting a building permit?

MS. BENNINGFIELD: Yes. So if you're going to get a building permit to replace a window you should look at your duct system at the same time, that's what you're advocating?

MR. HODGSON: Well, no, I presume the alteration would be specific to what the alteration is. So if you're going in and replacing your mechanical system, and you have a permit, then you should look at your duct insulation. That's how I'm interpreting this.

If you're, let's say, moving a wall out three feet, and you have to put new windows in, but you're not messing with the HVAC system, then you leave that alone. But, you know, you put in .4 window U value, .4 solar heating coefficient, something like that. Is that, am I in the right ballpark?

MS. BENNINGFIELD: Yes, but the reason there's no X's there for those kinds of circumstances is because in the 2005 standards those are addressed. So when you replace a HVAC unit in the 2005 standards you will have to do the duct ceiling. And the same thing with the

windows. You're going to have to meet the prescriptive requirements for new windows.

But if there's other alterations that aren't going to be affected by the 2005 standards that have opportunities, definitely we need to put X's in those.

MR. HODGSON: Okay, then maybe you could explain the time frame for what this is doing. I mean, are we doing something now that will take effect in 2006, or are we trying to do something now that will have an impact on the marketplace sooner than that?

And it sounds like the direction you're taking -- you meaning staff -- in this process is strictly regulatory, which, whenever there's an open comment period I'd like to add some comments on. I perceive Tom will have some comments on it.

Because the building industry would very much like to have a working HERS system in the existing market, and this doesn't address that. I mean, that's a voluntary system, so when we get to that section I'd like to open that up.

So this is a regulation that you're proposing, if we did a regulation it couldn't be any sooner than 2006, so that means that anything

in the 2005 standards would supersede this. Is that the -- okay?

MR. CENICEROS: That's right. I would also add that the building and appliance standards setting process, as well as -- for both building standards and appliance standards -- anything that can be handled within the current processes with no change in authority for the Energy Commission over those processes, we consider to better happen within those existing processes, and we don't need to make any recommendations to the Legislature as part of AB 549, although there are specific things that may be more difficult to do in those processes.

We might have supporting languages or something in there, but that's not the main purpose of AB 549. And the time frame is such that we really won't expect any results from the Legislature probably until 2006 or later.

This information will go into a report to the Legislature in October of 2005, and hopefully it will be addressed in the 2006 session.

I should also point out, though, that we are going to be providing an interim report by the

first of the year 2004, and if you see opportunities that we should make the Legislature aware of right now, things they can act upon during 2004, we're willing to consider that, too. It's an opportunity to do that.

COMMISSIONER ROSENFELD: This is Art Rosenfeld again. Let me see if I understand what Mike is bringing up. Under the alteration column you have rather few X's. But inclusive in every blank here -- let's look at HVAC, is really another symbol, call it a star if you want.

Which means, if you get a permit to upgrade the HVAC system then you have to upgrade all parts of the HVAC system, which are in the current building standards. Now, of course the '06 standards, Mike, won't take place until '06. But if there's something in the present standards you would have to bring it up to do that.

MR. HODGSON: Right. but Commissioner Rosenfeld, that's a really interesting issue, and I have no means to represent the building officials here, but there is a huge discussion between the authority of the Energy Commission and the authority of HCD on existing buildings.

And we've asked twice that during the

2005 standards that that be clarified. My understanding is it still has yet to be. And unfortunately Commissioner Pernell has left the room, because he is leading that charge.

So that whole column of alterations is really kind of I guess up in the air in discussion as to what the CEC has authority to do, and what it does not.

I'd love for that to be clarified. It's not our issue, it's really between the two state agencies. But assuming you have the authority to go into the existing building then that alteration, you know, column opens up to all sorts of opportunity for you.

MR. GARCIA: Okay. Al Garcia here. I've got a comment, and I actually wanted to go back to something that Rebecca and Cal had talked about. And Rebecca earlier mentioned a trigger event being the hookup into the utility system, and Cal had mentioned the multi-family and the single family home renters in San Francisco.

And I'm going to urge the group to take another look at the trigger events. It seems to me that by not including something like hooking up to the utility system you wind up not including a

pretty significant portion of the residential population, which is something like anywhere between 12 and 20 percent.

Because I don't really see a whole lot of events here that would wind up sweeping these folks, or these dwellings, into the process. So I think you need to rethink that a little bit.

MR. CENICEROS: And Al, do you think that by our considering that as more of a voluntary mechanism, kind of a trigger event, that that will lose that opportunity? Or do you think we definitely should look at regulatory options?

MR. GARCIA: The answer to that is I think we can look back on historical performance, and we know that voluntary participation doesn't get the kind of market penetration as regulatory. I mean, that's why you're considering this very set of actions.

MR. BROOMHEAD: Cal Broomhead. If I can add to that, the residential energy conservation ordinance in San Francisco passed because of the split incentive issue. That's why it got the political support to become instituted.

And that's why they also passed a commercial energy conservation ordinance in the

late 1980's, which was eventually repealed for other reasons that I'll talk about when we get to that area, but it's the whole problem of the split incentive, when you require the building to do something when the tenant really doesn't have the capacity to be able to do.

But I was going to ask, if you have some of these measures that you think are addressed by the 2005 Title 24 adoption, what are the other ones that didn't get included. I mean, can you just quickly run down this list and kind of tick them off, as to which ones those are?

MS. BENNINGFIELD: At the authorization trigger event? Because standards address alterations, and --

MR. BROOMHEAD: But I'm just saying, rather than us just asking questions and then finding out that a particular one is either -- are those the only two, or is that the only one, the duct insulation -- and you mentioned windows?

MS. AUSTIN: I would also, when you're looking at these tables, maybe take a glance at what the other tables are in our report, because in some other conditional clauses we say that.

MR. BROOMHEAD: You say that, okay.

MR. CENICEROS: I think if you'll look at pages -- this is the events and measures report, pages 22, 23, and 24 -- and you'll see the comments column does cull out many of the instances at least where they are covered into the existing standards.

MR. BROOMHEAD: Okay, well, I'll go back and read that.

MS. BENNINGFIELD: What I do see now, though, is increased efficiency of hardware lighting systems. That would be covered under residential alterations, which it does apply to.

MR. BROOMHEAD: Okay. Well, I was going to ask about programmable setback thermostats. It's already covered under the alteration requirements in the page 22 notes, but it seems like a really good opportunity at time of sale. It's such a cheap, easy thing to do, and could be there.

MS. BENNINGFIELD: Good idea.

MR. HODGSON: Cal, just for clarification -- Lynn, I'm not sure, is lighting covered in the retrofit in kitchens?

MS. BENNINGFIELD: Yes, I think there's an exception, there's a threshold. If you're

replacing more than so many watts in the kitchen you do have to meet it. I can't recall off the top of my head what the --

MR. HODGSON: Yes, I'm unfamiliar with that section, but Cal, the only other two things I know would be covered on the retrofit side would be windows and duct insulation, if you replace the condenser. So if you --

MR. BROOMHEAD: Okay, and since we have no residential air conditioning in San Francisco, --

MR. HODGSON: I just want to tell you that's what's in the standards proposed in 2005. It doesn't affect water heating. We've got Mr. 2005 to my right and -- Bill, is there anything else in the 2005 standards in retrofit?

MR. CENICEROS: Things that are required by --

MR. PENNINGTON: Well, the residential lighting requirement is --

MR. CENICEROS: This is Bill Pennington of the CEC, sorry.

MR. PENNINGTON: The authorization requirement for residential lighting applies -- I'm trying to think here -- there was an exception

that we had to create, and it's not coming to mind. But in general we're trying to make it apply to kitchen alterations.

MR. HODGSON: Just to kitchens, though?

MR. PENNINGTON: Well, actually all of them. If you're just changing one luminaire then it's pretty easy to have that luminaire comply. In kitchens there's a percent of the total watts that's covered in the standard, and so if you're doing a portion of the kitchen, then you have a hard time figuring out how to do that.

So, actually I'm forgetting exactly what the terms were for the exceptions.

MR. HODGSON: Well, if it's similar to what it is for new construction, then if you start changing out a couple of incandescent fixtures then it will trigger the entire kitchen to be fluorescent or high efficacy lights.

But I just want Cal to be clear, the retrofit portion of the 2005 standards is fairly nominal. It's not this big shopping list, it's just a few things, that's all.

MS. BENNINGFIELD: Yes, Tom?

MR. HAMILTON: I'm sorry, Tom Hamilton. On the table again, the three trigger events.

What's the difference -- well, I understand what the difference is between a sale and a refinance, but as an example, down in the building envelope, roof/attic insulation has an X for sale, why wouldn't it have an X for when you refi, because you still, the sale, there still is a change of title- - or not a change of title, but a rerecording of title, and you still have to go through the same process.

You can't make any improvements to the home until you own it, so you still didn't have to hire a contractor. So I would think, in many cases, if somebody is refinancing, you go through the same process that you do when you buy a house, to a certain extent.

In many cases refinance may have an opportunity similar to what you have in sale. That may not be the case across the board, but just --.

MS. JENKINS: Nancy Jenkins with the Energy Commission. I'm wondering if, on the blanks, if it would be helpful -- I'm wondering about the next generation of these tables if you could actually include some additional symbols that might help us understand whether or not you

found them not to go through the first screening because they're covered through the 2005 standards, or whether it's through federal preemption standards, or whether cost-effectiveness is the issue.

I mean, obviously, you've given this a lot of thought, so it would help us to, you know, be able to quickly understand why it is that you thought that those didn't fit.

MS. BENNINGFIELD: Okay, we'll include those clarifications on the final report. Seeing as how it's 11:20, and we have a few more tables to get through and other occupancies, should we move on? We'll have other opportunities to address single family alterations and more comprehensive strategies on single family residences this afternoon.

MR. CENICEROS: We also, we're loosely formatted here, so you could fill in your own X's, or cross out some of the ones we already have, and write comments in the margin area, or give us other input on these forms, and hand it in to us so we can take that away with us, whatever we didn't have time to say now, or you think of later. So please feel free to do that.

MS. BENNINGFIELD: Okay, do yo want to --? Okay, go ahead.

MS. AUSTIN: Oh, and you can also add others that are not currently on the list. For the multifamily trigger event we have slightly different events that we have chosen. We have alteration, we have sale and refinance -- we kind of grouped those together. And also an obvious trigger event is rental of space, when the occupants change.

So if you want to take out your multi-family trigger event measuring table. Basically the same process, and if anyone -- I'll give you a moment to renew it, and if anyone has anything to add or comment on at this time on multi-family?

MR. BARDSLEY: Yes, Len Bardsley, SoCal Gas. Under rental column, how would you go about tracking that if this was a mandatory measure? With regards to, many rentals are very informally done?

MS. BENNINGFIELD: That's a good question. We don't exactly know how it would happen, what the enforcement mechanism would be yet. We do know that these are very easy installs, very cost-effective, initially

relatively low-cost, not too many accessibility issues.

In terms of how they would prove they met a mandate, that would be something we'd have to work out, in terms of the mechanism.

MR. GARCIA: Al Garcia here. Lynn, I think you actually, one of you guys actually provided the answer when you were talking about how you selected the trigger events.

And I think one of the things you said was, gosh, you know, there should be an existing enforcing, something of an underlying infrastructure and maybe an enforcing structure. And tha's getting back to the comment that I made earlier, you know, hooking up to the utility is the trigger. And it's also the enforcing mechanism.

MS. BENNINGFIELD: Thank you. So, yes, there aren't any rental change of occupancies where there is not a change of an account, are there?

MR. HODGSON: Seems like an awful extreme measure, not that I'm against it, of course. We'd like to do these things to the retrofit market. But normally, in course of

business when you rent something you typically call up the utility, they ask you for some type of credit application, that all happens within the last 24 hours of when you actually move into the system.

You then go and -- and the utility now is the bad guy, because they're going to turn off your electricity and gas. You're going to call them up and go "how come?" And then they'll go "well, you didn't put ceiling insulation in." And you'll go "what are you talking about?"

And then you're going to have to -- assuming this person is voluntarily doing this, they're going to go get a contractor. "Well, in three weeks we can install your ceiling insulation." So don't refrigerate, don't heat.

I think you're, you know, I think the rental issue and even a refinance issue is an interesting trigger, but not a realistic one. I think at time of sale, where there is notice and there's a more formal process, that is issue one.

But you may have the attention of the builder at the time of construction to get a, you know, a meter. That's fine, we have that process in place. But once that meter is there, and

you're going to go from one transition to another, which is very fluid, very liquid, very quick in the rental market -- and I agree with you, a lot of rentals are done informally -- then now the enforcement agency is the utility, and I'm sure they're very excited about that opportunity to meet the customers in such a positive manner.

But I don't think realistically that's something that -- I mean, we should write it down and we should consider it, but I don't really thing it's a popular one or realistic one in the market.

MS. BENNINGFIELD: I'd like to hear from Cal, do you have any insight as to what's been tried?

MR. BROOMHEAD: Well, I was just going to say, with this whole rental column, we could move over to the single family measures thing also. But I think you're raising a really good point.

It really becomes an issue of what the building owner knows is going to happen, and if they know that they're going to have to do to comply with a unit, then they're going to do what they know needs to be done to be able to rent that

unit.

And if they can't provide -- if electricity can't get hooked up, or the gas can't get hooked up without changing the account, then essentially it's non-rentable. And so it becomes the renter's -- and that's, I believe that's state law -- you have to have heat and power in order for it to be a rentable housing unit.

And for that to be the case, then it becomes the landlord's responsibility and incentive to get all of their units upgraded, because somebody may vacate at any time. So there would be kind of a rush -- and that is a problem in itself in the marketplace.

You suddenly get a rush, and then work gets done badly, and fly-by-night companies spring up, and it just becomes kind of a nightmare in terms of enforcement. But you would get a rush in the marketplace if landlords believed that it really was going to be enforced.

Now in San Francisco we have a rent control ordinance, and many of our housing units were built before a certain date come before the rent board. So we have kind of a different enforcement mechanism that we would use, but

statewide you don't have that. Rent boards are a pretty rare item in the state.

MS. BENNINGFIELD: And one thing we did do was look at unit-specific measures on rentals. We didn't look at building measures like window replacements, ceiling insulation, things that would be done on a larger than a one unit level. So that's sort of a box we put around rentals.

MR. BROOMHEAD: I would add that our residential conservation ordinance includes duct insulation, attic insulation, weather stripping, water heater blanket, low-flow shower head -- did I say weather stripping? It was the former PG&E Big Six, they used to call it in the mid-80's.

COMMISSIONER ROSENFELD: But Cal, do those apply at just change of renter, of tenant?

MR. BROOMHEAD: No, they changed it to the sale of the building.

COMMISSIONER ROSENFELD: That's right. What we're stuck on here are the smaller measures on change of rental tenants. I think what I hear from this is, I mean I hear my conscience saying "don't get into this lightly."

On the other hand, I guess what has come out is, if there is some extremely cost-effective

things that, maybe they're just going to boil down to local charges, I don't know. But the trigger is probably going to have to be the utility change in billing. But I think my point is it's not so easy to enforce any of these rental ones.

MR. AHMED: A comment. Perhaps the measures can remain on the table, but it's the way ultimately that we administer could determine success or failure. We might give ten year timeframes for the property owner to make these changes. And he could continue to rent it, and he might decide to make all the changes. So there are a lot of ways to look into that.

MS. BENNINGFIELD: Yes, thank you.

MS. HUSSEY: Elaine Hussey, CEC. Is there an idea of what percentage of renters don't pay their own utilities, that the owners do their large buildings? I know older builders, especially, that aren't individually metered?

MS. BENNINGFIELD: Yes, we do have that data.

MS. HUSSEY: Do you have tha data in terms of how it would affect your triggers?

MS. BENNINGFIELD: Yes, we have it. I don't have it here, but it's --

MR. HAMILTON: This is Tom Hamilton. I"m going to chime in and ride the coattails of people. That's where you start getting into split incentives, when you're trying to deal with the renters with the individual units. Because they buy a low-flow showerhead and take it with them.

Now you're impacting potentially their security deposit, and the enforcement mechanism. One general question is that, at some point I'd like to talk about the appraisal issue for multi-family, so I don't know if that's now or later, let me know.

MS. BENNINGFIELD: When do you think we should talk about appraisals? Let's save that for when we talk about HERS, because we do feel that appraisal recognition of energy efficiency in the appraisal process is very important, especially in commercial buildings, but even in residences.

MR. HAMILTON: Yes, more in multi-family because of the income approach.

MR. BROOMHEAD: Cal Broomhead. I think that if you're going to implement this thing you would definitely put the honus on the building owner, not on the tenant. Because you don't want tenants to be messing around with shower heads.

Most building owners don't want that, because you mess up the plumbing, and those stems go back into the wall and you'll lose connection, and the unit leaks and it becomes a mess.

MS. BENNINGFIELD: So that does endanger the trigger, which is I'm the tenant and I want my utilities turned on. I'm the one who's supposed to take action. Now I have to get my building owner to take action, so --

MR. BROOMHEAD: Well, I think the point that I was making earlier is the landlord can't rent the place to you, they can't start charging rent until they have provided those basic services, and that's state law. So you would never be in that position.

The landlord would be saying, you know, dang, I haven't got that certificate filed yet, I probably can't rent the place until probably next week. That's the decision there, and whoever is the inspector, the people who are, whatever enforcement mechanism is set up, they're going to be dependent on is it the utility coming out, is it the city coming out.

You know, who is it is going to come out and make sure that that shower head is installed,

or the thermostat's been installed. Who's going to certify that, and how do they get that certified as quickly as possible because these people just vacated last night, and I'm not going to get paid my rent this month, and I can turn around and rent right away, but I don't have that certificate on that unit.

So that's why I say, I think it's going to create a rush in the market, because every landlord is going to be afraid that the unit could be vacated. They'll kind of pick and say "gee, out of these 50 units in this building I've got 25 of them that could vacate at any time. I better get a contractor over here and get that work done."

MR. BARDSLEY: Len Bardsley, SoCal Gas. I think we need to also look at the condominium issue. Several times you can have condominiums, 50 or 100 in one building, so that's 50 to 100 different owners who all share the same duct work, this and that.

Oftentimes they have councils and stuff within the boards of those condominiums. But you're dealing with 100 owners in a very confined space who would have to come with agreement every

time you would have a renter's change with these.

And I can see that being a real hornet's nest, trying to enforce this. It's just not one owner of a building, it's 50 owners or 100 owners.

MR. BROOMHEAD: Well, condo's are not owned, they're rented.

MR. BARDSLEY: No, you can rent condos. All the time. In fact, --

MR. BROOMHEAD: Oh, I see, you own a condo and rent it out.

MR. BARDSLEY: Right.

MS. BENNINGFIELD: Yes, it sounds like there's some logistical issues that can be addressed, but -- yes?

MR. QUINN: My name is Patrick Quinn, I've been appearing before the California Energy Commission since the day it was organized. I just sold my condominium, I've been involved in a lawsuit that I've reported to certain members, even those members that are in this room right this very moment.

We've spent over a million dollars because certain lawyers and certain real estate people did not understand the specifics of standardization and functionality. I'm sure that

Dr. Arthur Rosenfeld can explain that many times. Never.

Point being is that my condominium was just inspected within the last 30 days, and the check just cleared in the last 48 hours. The point being is that the original test here in Sacramento -- I happened to be the individual that performed those tests with SMUD.

The purpose of my test was to reveal diversity of functionality. I have not heard one word in any of these meetings with respect to the measurement of functionality.

Since 1998, I can go down into any underground vault put in by the cable system and/or the phone company and/or the fiber optics system surrounding ABAG, which is the nine counties of San Francisco.

I can measure any point that you have discussed here since I walked into this room a little over an hour ago. My background is metrology and instrumentation. I can go to any point in those vaults that are presently installed, and sample anything you want to look at, either to the address MPLS or the LSPF points in the vault system.

The question is why cannot we address those particulars? This gentleman here in the blue shirt has bounced all around that, but he mentioned the word historical in terms of performance. There is no historical performance. How can we talk about performance historically when there isn't any, in terms of metrology aspects.

MS. BENNINGFIELD: Okay, Dale, did you have a point about coordinating performance issues?

MR. GUSTAVSON: Not actually, I was going to go to the charts, but I'm waiting to raise my hand again at the appropriate time.

MS. BENNINGFIELD: Okay, in the interest of time let's get through the charts.

MR. QUINN: If I may make one comment to finish, please.

MS. BENNINGFIELD: Yes.

MR. QUINN: In the past 30 days, in Europe, in the ISO 14001 series, Schumberger has already declared that the Centrino mobile commerce aspects that we're using in this country are already security-wise so loosy goosy that we shouldn't even be considering them.

This very Commission, when I arrived in Europe, in Paris, on the 19th of July 1990, were already using California Energy Commission criteria to determine what it is you're discussion here today. ISO 14001 and ISO 9001 and 9002 have set the criteria for what it is we're discussing here.

We have a convergence problem, and I don't really hear anybody discussing convergence, except in the context of what something is going to be worth beginning in fiscal 2006 and 7,which is still three or four years away. And that gets me back to Proposition 53, and why it was voted no. Thank you.

MS. BENNINGFIELD: Thank you.

MR. CENICEROS: Thank you, Mr. Quinn. Dale?

MR. GUSTAVSON: Dale Gustavson, Cal-ACCA. Again, on the multifamily chart, under HVAC, I note again that refrigerant charge air flow measurement, and I wanted to make sure that you take my advice and add the measurement of energy efficiency and the measurement of capacity, that it moves from charge to charge.

And then secondly, I have a remaining

question on the single family table, and I was going to wait until later, but you opened the door. You have an X under the alteration for multifamily, and on that particular measure. And I'm trying to figure out why it would apply to multifamily and not single family, because--

MS. BENNINGFIELD: Which measure?

MR. GUSTAVSON: Well, refrigerant charge air flow measurement, and per my recommendation before, we're adding measurement of energy efficiency and capacity. That if it makes sense to me to figure it on this chart, then it makes sense to me that it be on the single family member as well. So I was confused as to what --

MR. PENNINGTON: There currently is a building standards requirement for refrigerator charge and air flow, you know, and there is an alternative that you can install a higher SEER air conditioner instead. But I think that may be part of the reason why it doesn't show up here, because there's already a requirement for --

MS. BENNINGFIELD: If there's a high rise it falls under the non-res standards.

MR. PENNINGTON: Oh, that's true.

MS. BENNINGFIELD: If it's a low-rise

house it would be included in the residential standards. So it's kind of a split case depending on the type of multifamily building.

MR. GUSTAVSON: On page 22 of the report, on the residential chart, when one looks at the comment for refrigerant charge and air flow measurement, it says "if the unit is a candidate for retrofit and a track system is involved." There's nothing said there about some other requirements.

And I just think, speaking on behalf of the HVAC industry, there's definitely opportunities at single family, at the alteration stage, to require what might better be called commissioning of that particular system or those components within the system.

And having had a permanent trigger, then there may be an opportunity there. That's all. So it made sense to me on multifamily, and as time expired on the other I was going to let it go to the end, but you put the X. I'm saying let's put it in single family too, because it's the --

MS. BENNINGFIELD: Sure, we'll rectify that.

MR. GARCIA: Lynn, Al Garcia here. I

have a follow-on question to that. And I'm not sure if I'm reading this table right, but both for the multifamily and the single family there is not X's on either the air conditioning or boiler upgrades.

And it just seems to me that if we've got -- whether it's a single family or a multifamily, where you've got an old package unit that's got a SEER rating of 8, and the place is being sold, gosh what a wonderful opportunity to replace it with a much more efficient unit. Am I reading this thing wrong?

MS. BENNINGFIELD: I don't think so. I think, in the context of say a HERS rating, where I come into your home and I determine that there's an 8 there, and that means your score is lowered quite a bit, then in that circumstance certainly requiring a replacement might be an idea.

We didn't put it because unilaterally it's not smart from a first cost standpoint to require replacing of major equipment on just change of ownership solely. So there may be some conditions by which it is cost-effective, and we may capture those with some of the mechanisms we're developing, but requiring you to replace

your air conditioner when you sell your house, if it's more than X years old, we feel is going to be a first cost issue.

COMMISSIONER ROSENFELD: This gets back to Nancy Jenkin's point. Maybe if you look at the return on investment then maybe it doesn't pay to replace an old 8, but maybe sure as hell it makes sense to replace an old 5. And just to have a blank here, without the words "depends on cost-effectiveness" is confusing.

MS. AUSTIN: We do have in the report, it says "applies when unit is performing poorly." But we couldn't figure out, what should we say is the threshold, or figuring out what the threshold would be would be a discussion for later, when we're talking about an upgrade because when do you draw the line?

MR. PENNINGTON: This brings up a major dilemma with how you approach a retrofit on sale strategy. Because, in general, all the houses are going to be at different points. Some of them are going to have retrofit installation installed, some of them are going to have an air conditioner that's about to die, and some of them are going to have an air conditioner that has, you know, ten

years left on its life.

And it doesn't make sense to throw away something that has a long life. And so if you approach the point of sale issue with well, what are the things that I know I can do in every house, you end up with a very short list, and you end up with potential savings that are far less than what people imagine is possible in all the retrofit sectors.

So you end up with a Big Six kind of strategy, which even that was difficult politically to get to happen when it was attempted to be done at the state level. You got a few communities going for that, but you have, in terms of the potential that you imagine you're talking about one to five percent of the total potential that you could get to have happen in every house.

And so if you think that the point of sale event is a fundamentally important event than you need to have some way of evaluating, on an individual house basis, what's reasonable for that house. And set up a system for doing that.

And I think that's kind of a fundamental dilemma here, that the report was tying to anticipate, that well, no, it doesn't make sense

to require for every house that you do X.

COMMISSIONER ROSENFELD: Bill, I completely agree with what you said. On the other hand, once you introduce the word idnvididual, I guess the question you have to address as a working group is are there some air conditioners which are so inefficient - I mean, you know, it's 17 years old and has a SEER of 5 -- that that individual you work out should be required.

Or is your question is that it's such a tiny fraction of the market that it's just not worth it?

MR. PENNINGTON: If you're talking about, you know, a very large price, the price of a new air conditioner is so large compared to your relative savings that you have to be sure -- I'm not sure that a 5 is going to be cost-effective if you have 14 years of useful life left on your air conditioner.

So it's a hard thing to evaluate in a global way. You can't do it on an individual house basis, I agree with that.

MS. BENNINGFIELD: And you'll see this afternoon -- we're kind of alluding to that now -- probably the best trigger event a house still

provides is someone to go in and evaluate where the systems are. Is the refrigerator brand new, is the air conditioner ten years old, are the ducts leaking?

You wouldn't want to stop with replacing a 5 SEER with a, you know, 12, you'd want to go in and do the duct diagnostics and upgrade them as well, which adds cost. So I think the prime opportunity is a chance to look at an individual house and see where the most cost-effective upgrades could be at that house.

And I think we'll be discussing that a little further this afternoon. But there are, like Bill alluded to, there are a few things that under all, in all single family residences in the whole state of California, if -- for example, ceiling insulation.

If a house doesn't have any ceiling insulation it would certainly be cost-effective at time of sale to require a retrofit of ceiling insulation. I think all of us would agree to that.

Beyond that there aren't that many measures that don't require a set of caveats -- where is it located, how severe is the weather in

that location, how old is the equipment, how is it operated, and so on. So it's very complex. Yes, Cal?

MR. BROOMHEAD: Our San Francisco residential ordinance has a monetary cap on how much money the landlord is required to spend, and so -- I think it's $1,500 right now. Then it's up to the landlord to decide which of the things, or the owner, from the sale, which of those things they're going to do.

So they're probably going to replace the equipment that they know might come back to haunt them in the next six months if it broke. Like the air conditioner or refrigerator or something else that might require -- another way to hand that might be, this whole question, might be that if you're going to require HERS as part of it, is to require a minimum HERS rating, and then whatever they want to do to get there is up to the negotiation between the contractor and the owner.

MR. GUSTAVSON: Dale Gustavson, Cal-ACCA. I may have missed it in the report, but I don't think so, I've been looking for it. There's a trigger event, or maybe an opportunity that I don't even know what category to put it in, it has

to do with home warranty replacement of air conditioning.

And having lived through it personally recently I, there's an industry, a rather large one, where there are opportunities at a high level to impact a decision being made by the insurance company that's doing the installation or the replacement.

So -- and I don't know if that would fall under alteration, but it probably would -- if in fact the replacement companies are requiring their contractors to get adequate permits to do the replacements, which I doubt based on my personal experience recently.

But I had a home warranty, extended it -- which I think is becoming more commonplace. You purchase a home that's a used home, and then they call you and want you to extend the warranty. And then one of my air conditioners broke, and the replacement was to be a 10 SEER unit.

As it turned out, the proposal from the company that was doing the installation was the wrong size replacement. So there's -- it seems to me there's huge opportunity there, because there may be a way to regulate those who are doing the

replacing, and make sure that they're doing a good job at the right level of efficiencies, and maybe attacking the rest of the system as well.

But if that's not their responsibility, if the rest of the system is not something that they're interested in financially looking at, the replacements might be reduced, if the people doing the testing to determine whether they need to be replaced are using the right kind of diagnostics to determine whether the units need to be replaced too, you know, it works both ways. It may be an opportunity, and I don't know what box to put it in.

MS. BENNINGFIELD: Okay, thank you. Just a couple more comments, then we'll go to the commercial table. Yes?

MS. GLASSEL: Bobbi Glassel with energy efficient mortgage. I work with HERS ratings on a daily basis, and to answer Bill's question, what will we do to improve that home -- correct, is that what you're saying? What would be the best, every home is different, every family is different.

I find that the people who have ordered their HERS rating are knowledgeable. Many times

there is not enough money laying on the table for all of the upgrades, and they have a choice. They might do wall insulation, attic insulation, and a whole house fan. And that's all the extra money they have.

Or they might do an upgrade on heat and air. But the average home is sold every five to seven years anyway, somebody moves. So in seven years now we have new attic insulation that's still good, maybe in five to seven years we might add at the same home a new heat and air.

But the HERS rating -- and I do use CHEERS, not just because Tom is sitting here -- we have to be cost-effective. So, in other words, if the payment goes up and -- my funds come from the lender -- I can't go and say "oh, you can have new heat and air, and it's going to save you $20 a month, but your payment is going to go up $30," that won't work.

But the HERS rating itself is a very accurate guideline on what they can and cannot do cost-effectively. And the home warranty? I've been in the real estate industry since 1979. They will tell you, you go lucky, most of them will tell you it's a pre-existing condition and we're

not going to replace it.

Or they're going to take that old 5 SEER junker and put a $50 part and make it keep cranking away. So --.

MR. RIEDEL: This is Randel Riedel, Energy Commission. I have one comment to be made in regards to the discussion around nameplate data in equipment, such as there has been discussion of SEER 5, 10 or whatever.

And I think we also need to be careful in whatever evaluation process we're doing. If we have the ability actually to measure the actual performance or efficiency of the equipment, rather than just go on the assumption that the nameplate is telling us exactly what the efficiency or performance of that equipment is.

We need to pay attention to that in our cost-effectiveness evaluation. So that's it.

MR. BROOMHEAD: Cal Broomhead. Just to respond, Randy, I think that's a wonderful thing to be able to do, but the first question I ask is what's the status of the industry, of the people who would be going into the buildings to be able to even identify, look at the nameplate. Do they ever do that? Do they understand that at all?

And could they perform any kind of performance testing? Would they have the tools for it, would they have the training for it, and how do you certify them, and etc. It's a whole another thing. Whereas it's easy to go, "yeah, air conditioner, yeah, they got a furnace, yeah, there's attic insulation."

MR. QUINN: Mr. Chairman, can I make one more comment please?

MR. CENICEROS: Well, we were just about to move on to the next section --

MR. QUINN: I think it's critical I make a comment to Mr. Riedel's most recent statement.

MR. CENICEROS: Okay, just keep it to 30 seconds or so, please?

MR. QUINN: I cannot hear you, sir, I'm deaf in my right ear.

MR. CENICEROS: Okay, why don't you go ahead, and if you'll keep it to 30 seconds or less, maybe we can move on to the next subject?

MR. QUINN: This is to do with the very detail this lady brought up. I worked with ARI on the various test labs, and the obsolete test methods they have been using up to this moment in time, in terms of whole compartments -- in other

words, zonal measurement versus whole house measurement.

That's the reason I brought these particular magazines, is so that the detail that's transmitted from the two points in the bolts that have been installed in most of the major cities, of the hundred major cities around the entire United States, have the capability, either within the dec system or within the java system, to detail those particular items.

And I'm giving this to you as evidence for that messaging of information, because ever since the beginning of fiscal 1993 most of your major appliances, whether their reading plates were within the national electric code or not, and however long they've been installed or not, the static information that was there had nothing to do with functionality nor the standardization of functionality.

That's what we're here to talk about, is how to measure that. Not static situations. I worked at Boeing in advanced test labs for 16 years, and the standardization of functionality is what we should be talking about, and the messaging that's required from the zonal points of any given

occupancy building. And we're talking about occupancies. Thank you. May I give these to you?

MR. CENICEROS: Thank you, Mr. Quinn.

MS. AUSTIN: For the commercial factor, there's a lot more information on the tables. We divided it up to six occupancy types -- office, retail, grocery, restaurant, warehouse and school. The same trigger events that were used in multifamily is used in commercial, except for rental you have lease.

I know it's a lot more information to gather and digest.

MR. GUSTAVSON: Cynthia, quick question. In the report, in one table, theaters and movies were pulled out, and I'm wondering are they part of retail? There's a lot of square footage, and I was amazed when I looked at your chart and it actually showed commercial office had about the same footage as theaters in the state of California, which, I guess that surprised me because there's now a multiplex on every corner.

Where are theaters in this chart? They were in one, and they seem to be missing from the others?

MS. AUSTIN: We don't address theaters

at all. I'm trying to look for that table you spoke of.

MR. GUSTAVSON: Me, too, I was amazed by the square footage, it just jumped out, like "wow, how did we miss this?"

MS. BENNINGFIELD: Is it page 12?

MS. AUSTIN: Oh, we have something on the average floor area of a theater, but as a percentage of the total commercial building floor space in California, I still think it's one of the minor ones.

MS. BENNINGFIELD: All that table is saying is that theaters are large, on average, not that they constitute a large portion of commercial floor space in total.

MR. GUSTAVSON: Right, but first, on a square footage basis, in my mind translates to how much air conditioning.

MS. BENNINGFIELD: Yes, and all the people in the theaters generating the heat.

MR. GUSTAVSON: Yes, so is it in retail or is it in office, or is it just not addressed?

MS. AUSTIN: It's not addressed.

MR. GUSTAVSON: Okay, I believe it should be.

MS. BENNINGFIELD: Feel free to mark it up, and let us know.

MS. MCCORMICK: I'm Anne McCormick with Newcombe Anderson, and I had a quick question on the categories, and I apologize because I don't know the history, if this question is out of context.

But I was curious about the hospitality sector -- hotels, motels -- and also hospitals and health care sector, if they belong in the commercial snapshot or if they're there somewhere else?

MS. BENNINGFIELD: The hospitals -- you're asking about institutional occupancies as well as hotels and motels? Okay.

We did not include institutional occupancies. They are not currently covered by the building energy efficiency standards. That doesn't mean that they can't be on the table for evaluation purposes.

MS. MCCORMICK: I mean, I almost think it would be more of an opportunity.

MS. AUSTIN: I also wanted to get at, what we found in our research is that they were a small percentage of the total floor space. We

tried to take the top, you know, couple of the spaces -- office and retail and warehouse and school.

MS. MCCORMICK: I would hope it wouldn't be just percentage of floor space, but percentage of energy use that you're looking at. Again, I'm just concerned that health care might be a missed opportunity here.

MS. BENNINGFIELD: That's a good point.

MR. BROOMHEAD: Yes, I would think the hotel, motel and hospital, along with probably the food service, have the highest energy utilization indexes.

MS. BENNINGFIELD: Yes, we have included schools in there, but we will expand that. Are there particular kinds of measures that people would like to bring up associated with those occupancies?

You can see me at the lunch break, or fill out one of the forms and leave it with us. Because certain uses would dictate us to look at certain kinds of measures.

MR. CENICEROS: Paul, did you have a question?

MR. DUDLEY: Yes, Paul Dudley with

Bristolite Industries. I finally get a chance to talk about daylighting, my passion since the early 80's.

And around 1981 I started to make my living exclusively by designing daylight systems, and I'm wondering -- and at first of course it was by retrofitting individual buildings, and the big box concept hadn't really taken hold, and people didn't really know that you could do these kinds of things in a retail space, because what would happen to the people if they actually had sunlight on them.

But, in any case, I'm wondering then why we haven't included other types of retail besides grocery, and why we haven't included warehouses, which I would imagine also would include factories, which are large consumers of lighting energy.

MS. BENNINGFIELD: You're right about the warehouses. In 2005 the prescriptive requirements are going to be that skylights are required of 15 foot ceiling heights or more and 25,000 square feet or larger spaces, which includes the big box you're talking about, and most warehouse facilities.

I don't know if it was an oversight, or because we thought it was impacted by the standards. I'll have to look at our notes as to why that particular occupancy doesn't have an X.

Grocery has an X because it doesn't always meet that 15 foot, 25,000 criteria, and we think that's the next logical level to apply daylighting techniques, to require them.

MR. DUDLEY: Another comment I'd like to make also. Because I had to make my living at doing this, I had to figure out what worked and discard what didn't work. And the number one key issue of course is when you're voluntarily trying to get people to do these kinds of things is to have money available.

And companies are like people, they don't have a lot of money available for this kind of stuff. You talk about buying a new plastic injection molding machine that's going to pay for itself in three months or something, and it's the owners passion that he's going to buy it in a second.

But when you're talking about cutting 200 holes in his roof and putting skylights in he's not too excited about it. But, so once we

get through the process of convincing him that that's all okay and he's not going to die or anything like that, the other issue is then getting the funds for it.

And, you know, we're probably dealing with a rate of, maybe, in retrofit maybe a 20 percent rate of analyses that we do versus jobs that we do. So either I'm a bad salesman or I'm a good salesman and I would have only had ten.

But one of the most important issues when it comes down to it, after everybody agrees this is a good thing to do is we don't have any money, or you need to wait for next years' budget, or, you know. And I've had company after company put these measures into bid for budget, you know.

For instance, JC Penney's 1,600,000 square feet of warehouse, eight years and finally they got the budget to do it in fourths. So when we're talking about trigger measures, also we're talking about something that's going to have to be palatable when you get through with this report to the congresspeople, and politically is going to be able to be passed and be put into law.

The trigger issues, it would be very, very helpful if they happened at a time when the

person that's going to have to pay for them would have money available, either through financing or through a sale or something of that nature. And I see some of these trigger points don't have that.

And so you'd just be forcing a person to pay out of his pocket for something that the government said "you have to do." And that's not very palatable. So, just a comment that, if that could be included. If trigger issues could be made at the point where at some point there is funds available for the person who's going to have to pay for them, through financing, would be really helpful.

MS. BENNINGFIELD: Okay, so in the case of a grocery alteration, it could be conditional on whether they are re-roofing or not. If they're re-roofing they have money available for that, then it may be the time to require skylights, or to require them to do the feasibility analysis for skylights.

MR. DUDLEY: Yes.

MS. BENNINGFIELD: Okay, thank you.

MR. CENICEROS: There's another side to that, too, and I don't know if you're implying or not, Paul, and that is the possibility to at least

acquire information on available programs that finance this type of improvement whenever this particular trigger happens. Is that something you're also --?

MR. DUDLEY: Yes, and also -- I told you about an idea that I had that I've written up for you regarding government insured loans for this kind of stuff. If you, the other issue of course if money out of pocket.

If you had a government insured loan for a energy conservation move that was going to pay for itself in five years, and a loan was for, like, seven or eight years, and the payment on the loan was less than the monthly energy savings, it would just be a done deal. Anybody'd be foolish not to do that.

And that, however, would be a very complicated logistical system to set up. I think once it got set up it couldn't be complicated or it wouldn't work. But once it got set up it would be really a great thing.

MS. BENNINGFIELD: Thanks. I'm feeling we need to wrap up here, I'm getting a couple of cues from people. We're ten after 12 now, and the agenda calls for lunch break at noon. So do we

still want to resume at 1:00 or do we want to make it 1:15?

MR. CENICEROS: Well, first of all, do we have any more comments on the commercial table that people didn't have a chance to get in? A show of hands? I don't want to do it now, we can pick up after the lunch break, or whether we should do it now.

So why don't we break now and return at 1:15, is that okay with everybody? Cal?

MR. BROOMHEAD: Yes, the roof attic insulation will come, I'll add it. Were you thinking that there would be differences according to the different climate zones in the state?

MS. BENNINGFIELD: Yes.

MR. BROOMHEAD: Because San Francisco roof insulation on commercial buildings is not going to do much.

MS. BENNINGFIELD: Yes, thank you.

MR. CENICEROS: Okay, we'll go ahead and break for lunch. I think you'll find the afternoon session will be even more interesting a discussion than this one, we'll really get into some of the more promising strategies, and address some of the more challenging issues that people

are already alluding to here about how to assess opportunities in different kinds of buildings, and get around all the different complexities and exceptions in every building. Enjoy your lunch.

(Off the record.)

MR. CENICEROS: Okay, we're coming back on the record at 1:19 by the clock on the wall, which is a little bit fast. Lynn Benningfield from Heschong Mahone Group is going to continue facilitating the afternoon portion of our agenda.

We're going to look at key focus areas that they have identified, and later give you an opportunity to suggest additional areas if you think this doesn't cover it. Lynn?

MS. BENNINGFIELD: Thank you. Okay, we're going to structure the afternoon a little bit differently. We're going to introduce the topic, and then give comments on that, and then proceed to the next topic area.

We've identified these five good areas that we think show promise for saving energy in buildings, and I want to go through our reasoning, our rationale, and then we'll have time to talk about each one.

There's two kinds of strategies that

work. One that we can use in the short term, it uses proven mechanisms and proven technologies, and proven cost-effective measures. Sort of a yes/no question. Is it in the house, is it in the commercial building? Yes/no, if not then it could be installed.

There are longer term strategies that would require expansion of authority and would require more consensus building and preparation. And so some of those do take a little bit more time and they might require some voluntary intervention for them to be successful.

Okay, here are the five bulleted items. Of course, we want to go for the low hanging fruit first, which is to look at the building and the appliance efficiency standards, look at the margin of the authority there, look at ways that they could be expanded somewhat to impact existing buildings a little bit more.

Rate the relative efficiency of buildings and evaluate cost-effective improvements. This is a rather large topic that includes looking at the HERS protocol on the residential side, and then would look at retrocommissioning and fine-tuning of commercial

buildings on that side.

We also want to do what we can to encourage use of controls, and by that I mean effective use of controls so that they are user-responsive and they aren't bypassed by the user, but the basic idea of not using the energy when it's not needed is the basis behind expanding use of controls.

Support special tariff and demand response programs. And this is a very good timing opportunity I believe for looking at what kinds of restructuring of the rates are happening at the utility level now, and how that can be used to encourage improvement in buildings.

And then last we want to look at facilitating development and adoption of model retrofit ordinances. We feel that community based grassroots level had been very effective and we want to learn why and also maybe provide support at the statewide level, sort of a framework by which local ordinances could have similar attributes that maybe in the long term could evolve into a statewide mandate.

So the format for discussion is I'll do a little bit of explanation, and then I want to

hear from you, your comments. Especially if you have experience in the area, what the lessons learned are, maybe the implementation issues, any savings estimates you might have, what would be required in terms of consensus building to make the thing actually work. What barriers do you see in the way, and what could be facilitated to remove those barriers.

So let's first talk about expanding the building and appliance standards regulations. Okay, what's good about looking at that as a way to impact existing buildings?

Well, there's two reasons. One is that new measures can be quickly adopted. There's already a process that involves consensus-building, that involves technical hurdles that need to be jumped through, and that involves the public in terms of accepting a new requirement.

Also the enforcement channels are well-established, they've been established over the years. Particularly where a building permit is required. Building departments are used to enforcing the standards, so if we can just expand those to new areas we can use the existing mechanisms and maximize the potential.

Okay, what are we looking at when it comes to proposing expansionary standards? Some of the items we came up with are looking up landscape lighting and controls. Perhaps lowering the threshold for non-residential lighting alterations.

Right now, in a commercial building, if 50 percent or more of the fixtures need to be replaced for it to be considered a lighting alteration and for the code to be triggered, and that could be lowered.

Occupancy sensors. Maybe requiring occupancy sensors in small offices on a retrofit basis. That is not a requirement of the current code, but definitely controls are encouraged for power adjustment factors and there are requirements for sweep controls and some local controls in the standards now.

But at the time of sale or at the time of lease it's fairly easy and cheap to retrofit an occupancy sensor in a building where one, in a space in a building where one or two might make sense.

And then also we're looking at expanding the requirements for cool roofs. Right now

there's only certain slope requirements on certain types of roofs that are required to be retrofitted with cool roofs, all the others are exempt. So we can look a little bit more closely at that criteria, see if there's any room for improvement there.

And then, requiring replacement boilers. This is a very specific recommendation, but in the multifamily sector there's a lot of central systems where the pumps are not really controlled, or they're not controlled effectively.

And it's a relatively easy retrofit to go into a multifamily building, say at the time of sale. Is the control there for the research, if not then require that it be put in.

Since we're talking about the building standards area, if their boiler is replaced it's akin to looking at duct ceiling now when you're putting in an HVAC system, replacing that. When you replace a boiler you look at the distribution system of that boiler, and where there needs to be a control on a re-circuit go ahead and require it.

Okay, the next slide talks about appliance standards expansion areas. And again we're looking at lighting, and when we're talking

about landscape lighting there's two ways you can look at it. You can look at the landscape as a system, you know, several connected lights.

And that would fall under the auspices of the building efficiency standards. Or you can look at specific luminaires that are utilized in landscape lighting typically, and those could be regulated under appliance efficiency standards, the efficacy of those lamps.

Also, we're just now getting into outdoor lighting with the 2005 standards. And we're also getting into expanding residential lighting efficacy, and there's a kind of an inherent problem when you're looking at pin-based fixtures. There's so many pin types out there, and there's so many choices that that was revealed as a problem in implementing residential lighting requirements.

If I'm required to install hardwire fixtures I'd only have one wattage choice because I have a certain pin configuration. Then what happens when that lamp fails and I need to go to Home Depot and replace it? I might not find the appropriate pin configuration. It might be difficult to do.

And the manufacturers recognize this problem. It's not as big of a problem in commercial. But they're trying to work with Energy Star and other programs to sort of limit the consumer choice in terms of range of options so that it makes it simpler to purchase that.

And appliance efficiency standards could have a role in it, in terms of what kinds of pin type configurations might be acceptable for a compact fluorescent hardware lamps.

Also, there's differing opinions about the effectiveness of residential setback thermostats. We've heard everything from they can actually use more energy and people tend to bypass them, people operate their homes as if it was on a gas pedal, you know, turn it up, turn it down.

So there's definitely a problem. We're not getting the savings that we thought we would be getting and were expecting of residential setback thermostats in general. So I think, looking at that area and trying to get a fix for that also would help. And that could be done through the appliance efficiency standards.

For the standards in appliance efficiency topic areas now is the time to give

some feedback. Areas that we may have overlooked, areas that you would like us to look further into. Concerns, issues -- anybody have any input?

We've been working with the CEC team and Bill Pennington to examine where the boundaries of the current authority is, and we feel that this set of measures that I've just discussed are relatively quick burn items that can be implemented quickly and start saving energy right away.

And the rest of the discussion this afternoon is going to be on things that will probably require a little longer-term strategies to be successful. So, -- yes?

MR. HAMILTON: Tom Hamilton. On the non-res, when an alteration -- a little bit back to the table -- an alteration is basically a building owner that puts on a new face or guts the building that's specific to the building, and then a lease is when a new tenant comes in.

When you do a new lease and you negotiate the tenant improvements, a permit is required to be pulled at that time, is that correct?

MS. BENNINGFIELD: Yes, that's an

alteration.

MR. HAMILTON: So you would have the authority then at that point to implement, but you wold probably only affect HVAC and lighting at that point, for commercial?

MS. BENNINGFIELD: Yes, it depends on the extent of the TI that they're looking for. But typically it's lighting and occasionally HVAC. But there's some opportunities within that, because they would need a permit, there would be an alteration, even though it is triggered by a lease.

So all the measures would apply that would apply to an alteration. But because it's a lease trigger it's not impossible to conceive that other things could be done at the time of the TI.

Some standard things that might be cost-effective to do at the time of lease. Because one of the key cost-effectiveness criteria is is someone in there working in that system anyway? How much does it cost to get the technical expertise to the building?

So once you have that there -- I mean, it could be done through a voluntary mechanism, and it could be done through a mandatory

mechanism, but if you're having someone install a larger air conditioning unit for example it would be good to also make sure that system is performing as it was intended.

MR. HAMILTON: Because one of the items, I just thought of it as you were talking with the lighting, of upgrading the LED exit signs, of making that a requirement. Those all seem to be cost-effective.

MS. BENNINGFIELD: Yes. Yes, Dale?

MR. GUSTAVSON: Dale Gustavson, Cal-ACCA. I wonder if there's some opportunity on the commercial side of building standards for maybe lowering the threshold of requirements of the installation of economizers from the current tonnage to something below what the industry gravitated towards, which of course was the tonnage just below the existing standard.

And at this time in history it may not be as onerous as having attacked that through code in the past, because a newly installed economizer, with the right kind of solid state enthalpy control, and demand control ventilation, which is something that's moving into standard, that's integrated -- especially light commercial -- with

setback thermostats, are very likely to work for a long time, if they're properly commissioned in the beginning.

So there may be an opportunity three. We know that some 85 percent of economizers aren't working, so whatever the trigger event happens to be, maybe we should be putting economizers on four ton air conditioning units or something. I, you know, the cost-effectiveness of that may not pan out, but it might. Especially if there's equipment on the units that would provide for the installation of just the controls.

MS. BENNINGFIELD: Okay, good suggestion. Any other comments on standards based mandates?

MR. AHMED: Lynn, I have a question. If we have comments later on, may we mail them to you?

MS. BENNINGFIELD: Yes.

MR. AHMED: Later on, after we've reviewed some of the material from today?

MS. BENNINGFIELD: Yes, comments can be mailed to us. We're scheduled to complete the next phase of the project relatively soon, so the sooner the better. But also we're available for

phone calls and discussions, because now is the time when we're looking at the particulars of implementation.

Okay, let's start talking a little bit about building rating and building evaluation and whole building performance issues. Rating the relative efficiency of existing buildings is informative but does not in and of itself save energy. When measure is adopted as part of a recommended strategy then the energy savings occurs.

In residential buildings the home energy ratings system provides the standardized evaluation of the homes' energy efficiency, and then in commercial buildings the closest thing to an equivalent would be retrocommissioning.

Actually, when a building is commissioned there is fine-tuning done at the same time, whereas a HERS rating there may or may not be any intervention as part of the evaluation. And also there's other differences which of course we'll talk about in a few minutes.

But these are evaluation intervention tools with lots of regulatory opportunities, especially during the trigger event of a building

sale or even a building lease. And these are very promising areas because they look at an individual building and the individual variances within that building. So energy savings can be optimized for that particular condition.

So home energy ratings. They can be used in a variety of ways to motivate building owners. Evaluation could be required at time of sale. Here's your house score, here's your neighbor's house score, that could be the mandate. The utility program could then pick up and encourage an owner to do certain things as a result of that.

Is your score lower than this? Then why don't we do X, Y, and Z to your house, and here's a rebate, by the way. There's lots of creative ways we can look at how to use the rating itself as a way to incent people to make a change in a building.

Also, certain benchmark performance criteria could be established and required. Like is your house a score of X. If it's below that you're going to be required to make some improvements to get it above that threshold. If it's already above the threshold you pass, if it's

somewhat higher above that threshold you might qualify for some type of carrot, like a special utility rate or some sort of bonus incentive.

Certain mandatory features could also be required to be installed as part of the HERS rating. In other words, the house is rated at a certain level, but it's also found during the course of the evaluation that it doesn't have adequate ceiling insulation.

Maybe that could be the mandate, must bring up the ceiling insulation level, and then here's also your HERS score to do with what you wish -- to get an energy efficient mortgage, to go to a utility program, whatever. But you could require a mandated installation based on the results of a HERS evaluation.

MR. BARDSLEY: Lem Bardsley, Southern California Gas. Just a quantitative question. How many HERS auditors are registered in the state of California?

MS. BENNINGFIELD: Bill Pennington knows that answer. Do you, Tom?

MR. HAMILTON: CHEERS has just a little over 200 statewide.

MS. BENNINGFIELD: It's only going

to grow, because these raters are going to be more essential in the 2005 implementations, because there'll be a lot of verification required.

MR. BARDSLEY: Has there been any push to have the raters and the appraisers in the same bucket, with a dual skill set? As opposed, if you go way back to our very first chart of the morning you would have to have an appraisal for a refi, and then you'd have to have a HERS rating also.

Which are two separate costs, and two separate people, if you would, two separate reports, two separate areas. If you had that skill set combined that could lead to more cost-effective measures.

MS. BENNINGFIELD: Cross-training and cross-certification?

MR. BARDSLEY: I don't know how you could drive that.

MR. HAMILTON: Tom Hamilton. Yes, we have some raters that are appraisers, we have some that are home inspectors, some are installers, it runs the gamut. Appraisers, they do say that a little bit -- I think it's on form 70A, where they address energy efficiency real briefly.

But on residential they're using sort of

a market value approach, which doesn't factor in the energy savings.

Where on a multifamily the income approach is more applicable for a multifamily, where you would value the energy efficiency savings. So, yes, there is a lot of cross-training that does occur right now and certainly consolidating it to one person makes sense. Some do it, some don't. It's a matter of preference I think.

MR. BROOMHEAD: Cal Broomhead. I would think that we wouldn't want to peg any particular part of the industry and say "these are the people you have to be." You'd make the training available to anybody who wants it. Some real estate agents might decide why pass that cost on to somebody else. If it's easy enough I'll take it on myself and make an extra hundred bucks. Whoever wants to go into business, into doing this --

MR. HAMILTON: Yes, and it's even getting to the point where, you know, particularly with appraisers. Appraisers want a cookie cutter, a single family, they are not even showing up. It's basically just top underwriter or artificial

intelligence they're using, so they may not even go.

Also, home inspections aren't required in the state, and some firms don't support the view of home inspectors. So the rater may be the only person that ever shows up at the house, if it is required. But it's another variable to think about.

MR. BROOMHEAD: I thought most banks required it, not just a pest report.

MR. AHMED: Well, I do -- some of the appraisals that I have seen, the person just walks in and asks how many bedrooms there are, how many bathrooms, how many car garage, and that's the appraisal. Then they just walk out. They spend less than fifteen minutes in a home.

MR. BROOMHEAD: I've seen them do it in a minute and a half.

MR. AHMED: Exactly. But I would agree with Len that a good time to do it would be when the homeowner is about to sell the house and wants to know the value of the house, and at that point he or she needs to know what needs to be done in order to qualify for the sale.

In other words, put in more insulation

or whatever needs to be done. So I think in a way it's better if the appraiser and the rater, the HERS rater, is the same person. Or the realtor and the HERS rater is the same person. So the person knows where the problems are at, if I have to sell this house I have to spend $3,000 before I can even sell it. So I think that would really be helpful.

MR. GUSTAVSON: Dale Gustavson, Cal-ACCA. I was wondering, just following up on that idea. I'm wondering if it doesn't become somewhat of a barrier though when you start talking about looking at the HVAC systems in a residence.

My last real estate agent was pretty darn aggressive, but I can't imagine them carting around duct work, and they certainly don't have the licensing or the training to slap gauges on the HVAC system, so --. Good idea, but maybe hard to milk. In a perfect world.

MR. AHMED: Well, what I meant was combine in the sense that the real estate agent could get the HERS rating if necessary, you know, to check the ducts and the attics and things like that.

MS. BENNINGFIELD: Is a contractor's

license required to be a HERS rater?

MR. HAMILTON: No, because our raters aren't allowed to install anything or sell anything, so you don't need a license.

MS. BENNINGFIELD: But they do apply guages to equipment, and they do duct blasting.

MR. HAMILTON: Except for the refrigerant charge you have to be EPA certified. Most of them, you know, to do a duct test or a blower door or a flow hood, you don't need a license to do that. As long as they don't touch any of the equipment, removing it or anything like that.

MR. GUSTAVSON: Dale Gustavson, Cal-ACCA. Tom, pardon my ignorance on this, but is there any consistency across the 200 raters in terms of how many are using those kinds of diagnostics on the HVAC, or is it just a way they're differentiating one another right now?

MR. HAMILTON: The diagnostics are used more on new. At this point in time we do have some that will do diagnostics on existing. But the majority of it on new, because of the standards or the programs that are being run, like ComfortWise, they will do diagnostics.

But on existing it's more -- if they don't do diagnostics there's default settings in the software that will kick in for determining cost-effectiveness or energy savings.

MR. GUSTAVSON: So might there be an opportunity just in terms of what's required to become a rater, that the EPA certification might be added in order to then take advantage of some of these diagnostics that we have on the market at this time.

And I'm just thinking that might be a real easy way to change a whole bunch of people real fast.

MR. HAMILTON: I know there's three levels of the EPA certification. If you do a refrigerant charge, if you, again, tap the line, the refrigerant line. But to get that, again, I'm not sure. Some of our raters have it because they're HVAC contractors. They're C20's, and some have B licenses.

But it runs the gamut. At this point in time it hasn't been -- at least on new construction -- the refrigerant charge hasn't been a big selling point I guess. Most of them are doing tight ducts or better systems -- HVAC, SEER

12's, that type of thing.

MS. BENNINGFIELD: This question is for both of you. if we start looking at older homes with different kinds of installation and older equipment that's maybe not as easy to access as you see in new construction. Would that become more of an issue then, to have the proper -- to even maybe require a C20 license?

MR. HAMILTON: No, because I don't have the equipment itself, if you go into a home -- I'll just use my house. It's built in the 60's, and the equipment is there since the 60's. Yes, you can look at the label. Once you look at the label that's on the equipment you then have to go to ARI, I think it is, to look up what the equipment is, the SEER rating and so on.

And then to do a tight duct test you just have to see all the registers and put on the system and test it. That's the extent of looking at the equipment.

You get extreme if you ever did something legislatively or regulatorily of, you know, every house sold must meet the Title 24 2005 new construction standards, that you have to have a SEER 10 with a TXV, or SEER 12. You know,

that's -- but looking at the equipment and testing it is fairly easy.

MR. GUSTAVSON: Let me respond, Tom. First of all, quick retort, I'm not sure it's as easy as it's been portrayed to investigate how well an air conditioner or air conditioner systems are working. In fact, the industry I represent is plagued with poor performance in that area, even though the expertise exists.

There are other barriers in the marketplace that are preventing good work. And we don't need to go through the list, but there's a lot of shoddy work going on. So, but in this point brought up earlier, I think it was something Randel said before going to lunch -- it may be possible, instead of deciding that a 10 SEER unit must be replaced with a 12 or 14 or something that isn't going to be palatable, that we might be able to require that a 10 SEER unit is operating at 90 percent of its capacity or efficiency.

And the ability to do those measurements exists now. And the ability to move those units from 65 percent efficiency and capacity to 95 or 100 exists now. And it's simply by putting a -- let's call it a supergauge connected to a computer

that says "here it is, and you change the charge, and you clean the coil, and you'll increase the efficiency by this much."

And then you do the work and verify that it's done. All of that is doable now. And so we can at least get the ones out there up to a particular standard, if replacing them is not politically ballottable.

MS. GLASSEL: What does something like that cost? Are you saying this would go with the HERS rating?

MR. GUSTAVSON: Yes, I see an opportunity with the HERS rating, I see an opportunity --

MS. GLASSEL: How much does something like that cost?

MR. GUSTAVSON: About $2,000 per each technician.

MS. GLASSEL: $2,000? This is cost-prohibitive.

MR. GUSTAVSON: Well, there are a couple of different models, but there's only one where the energy efficiency and capacity is determined, and that's a particular technology and it --

MR. RIEDEL: Dale, excuse me, this is

Randel. She was asking how much does it cost the homeowner to have that test done?

MR. GUSTAVSON: At this point in time no more than it would to do a regular maintenance kind of inspection on a home.

MS. GLASSEL: So are you saying that they would have a HERS rating that costs the buyer $200, that's about the going rate, plus --

MR. GUSTAVSON: Add $50 and you have an accurate reading on the refrigeration cycle of the air conditioning system.

MS. GLASSEL: Who's going to come out for $50 if the HERS rater doesn't --

MR. GUSTAVSON: If the HERS rater has the equipment the HERS rater could do it for that incremental cost easily.

MS. GLASSEL: Okay, I"m with you now.

MR. GUSTAVSON: That's, there's certainly an opportunity for us to be talking about this.

MR. GARCIA: I have a comment, because this is a discussion tht Bruce and Randel and I have had over time, and it has to do with what Bobbi was getting at. What's the incremental value of perfecting that information? I mean, we

could probably get it four decimal places out there if we were willing to spend, I don't know, $5,000.

But if the savings that you're going to get is going to be $528 a year, you really have to think about it as to what is the value of that, and are we really accomplishing anything for the public good.

MS. BENNINGFIELD: Yes, Mike.

MR. HODGSON: We're talking about HERS in the retrofit market. And my understanding, and correct me if I'm wrong, the rulemaking for HERS for the existing market has not been completed, so we really need to do that first.

And I think that may be an opportunity to encourage the CEC to complete their HERS rulemaking by January 2004 -- you know, something realistic. And then, you know, build on that. Because the HERS process is in the new construction market, it's working reasonably well there.

It's very cost-effective for the people who are using it properly, and it's a great building block. It's an example of what to do, and what to do right. And I think the Commission

agrees with that approach also. And I know the utilities agree with that approach because they've been sponsoring it for such a long time.

So when you say HERS infrastructure is already set up, I'm a little concerned that the actual final step of that HERS infrastructure, which is a rulemaking which gives us the authority and the quality control that people like Tom need to maintain his HERS raters, doesn't exist.

MS. BENNINGFIELD: Yes, you're right.

MR. HODGSON: And we need to close that loop, and we've been trying to do that for about seven years.

MS. BENNINGFIELD: Good point.

MR. QUINN: Mr. Chairman, if I may. Home energy ratings, and the information I gave you with respect to the java and the dec messaging, has to do with what we call in the control business the backbone systems.

If you have two backbone systems that are able to transmit the data, if you look at today's San Francisco paper it says "cable rates to rise." Now that's exactly what I was talking about in terms of how you're going to address any and all buildings no matter where they're located

in any given city, but in principle the largest 110 cities in the entire United States.

This is the problem that's been addressed from a national design tool perspective, coming down to the regional and sub-regional perspective. In that context, the diagnostics have always been the charge that people like myself, that have been associated with the National Institute of Standards and Technology have always had to look at.

So in terms of the backbone of information, those two references in that magazine that I gave you were specifically addressed to how you're going to get that information from the front end of the system to the back end of the system.

The diagnostics that Mr. Hamilton here is referring to is one of the reasons I wouldn't become associated with the raters in this particular state, even though I think I have those qualifications.

But the particulars are that the standards still are not established for functionality and the measurement and the establishment of those backbone systems. We are

in this interim period of time, and you're trying to address how you're going to fill in or backfill the very situation during this interim time period between now and the beginning of fiscal 2006 and 07.

Dr. Rosenfeld asked me the same question. We have resolved that question in San Diego. When the California Energy Commission went down there, I think it was September 1996, and put on the PIER program for that very purpose, was to educate the people of San Diego and the business people precisely what Title 1 was all about, what diagnostics was going to be required, and what the backbone system was going to be when Microsoft and IBM brought out the messaging system in the backbone to transmit between the bolt and the cities.

I can tell you standing here today the work I have involved in. We have over five million buildings in Italy that are being operated from Sunnyvale, California. Now how come we can do that and we can't do it in Sacramento?

MR. CENICEROS: Thank you, Mr. Quinn.

MR. QUINN: This is what fascinates me, is the vacuum that exists here in terms of

technology.

MS. BENNINGFIELD: I think to solve some of these HERS issues, including getting going again on the rulemaking, later on we'll be looking at forming working groups so that we can schedule some of these issues and work through them.

We need to do a little bit more work in order for this process to be viable, but I think it's close and its worth looking further into. Are there any other on residential? Yes?

MS. BACHRACH: Devra Bachrach, NRDC. I'm wondering what discussions you've started having, perhaps with the real estate industry, on this topic.

MS. BENNINGFIELD: We're trying to get them to the table. We have sort of semi-accomplished that today. But what we want to do with these working groups is identify the key stakeholders that will help formulate the process that works.

So other than the feedback of they don't want it, it takes time and it hurts the sale, we haven't had any formal discussion. Randel has actually had more experience than we have on it. Do you want to just briefly share some

information?

MR. RIEDEL: Yes, I can just briefly give you some information. A number of years ago, when we were developing the energy efficient mortgage programs, under a legislative mandate, we did contact the California Association of Realtors, and they participated and assisted us in developing a teaching tool that was given to their members, that not only talked about energy efficient mortgages, but home energy rating systems.

One of the lead individuals there also helped to put in their standard deposit and receipt form a specific terminology in their disclosure that said, when made available that they were to supply the prospective homebuyer with a pamphlet that described what home energy rating systems were, and how it could benefit them.

I just recently spoke with the governmental liaisons who are located here in Sacramento with CAR, and told them abut the workshop and AB 549, and directed them to your website, and was told that they would participate.

So, I don't see them here today, but I don't take that as necessarily that they're not

interested in participating. So one of the things I do want to do is encourage them to become a member of one of our working groups. So I hope that didn't go into too much detail about answering your question.

But at least we know CAR has a stated interest in participating.

MS. GLASSEL: The average life of a real estate agent is probably two years, and that probably goes for the lending community too. We've been asking the realtor and the lender to be the salesperson for energy efficiency.

I was a realtor for 15 years, so I feel that I can say this. They're not interested. Their purchase order now is little check boxes, check this, check that, sign your name. And oh my God the poor little babies are only collecting 6 percent commission on $300,000 homes, you know.

We can no longer ask them to be our salespeople for energy efficiency. They've become a computer industry. And I see energy improvements, how are we going to allow these homeowners to finance these energy improvements? Where's the money coming from? Go ahead, Randel.

MR. RIEDEL: I'm sorry to interrupt you,

Bobbi. This is Randel again. The main reason why we're seeking to have an open dialogue with them is because they might be one of the particular parties that would put some objections to what it is we're trying to do, so we're not necessarily soliciting them to help us in regards to sell or promote the program as we are in regards to getting their understanding and/or support of what we're trying to do.

MS. GLASSEL: Randel, one of the suggestions I made -- and I don't know if it's a correct one, but it's as good a place to start as any place. Let's get this on the purchase order, or as an addendum to the purchase order, that says "Mr. Buyer, you have an opportunity to look into energy improvements."

That way that buyer knows that it's there. That's all we're asking is just let that Mr. Buyer know that this is available, and we do need CAR for that.

MR. RIEDEL: We really appreciate the written comments that you also supplied us, that helped us a lot.

MS. GLASSEL: That took my whole brainpower, Randel, that just filled me with --

MR. RIEDEL: That type of response we really appreciate, so thank you Bobbi for that.

MR. QUINN: May I have one more minute please.? Very critical. I'd like to answer this particular question. Everybody's asking about the cost. Every cost is unique, every cost is customized, without exception. Let's get that straight.

If all of you will take the time to go to Reno on the 14th and 15th of next month, less than 30 days from today, in four dimensions of old buildings and new buildings a very specific question as follows will be answered. Fire safety, life safety, electrical safety, and building safety.

Now all the questions you've asked since you arrived here at 10:00 this morning, from the national fire code, from the national building construction and safety code, those two days in Reno will be answered for you. The related cost will be answered for you.

Now that was signed off by the National Institute of Standards on July 29th of this year. Without exception, it covers all new buildings and old buildings. Now that is under the national

fire protection code 5000.

I was in the competing code of the international code council on an international basis, which has now been superseded on the national basis. So I'm inviting each of you, please, please go to Reno on the 14th and 15th of November, and your questions will be answered.

MR. RIEDEL: Would you send us that information in an e-mail form so that we can provide it to others, please?

MR. QUINN: I am no longer attached to the web. I'm totally disgusted with this insidious game that's being played. So that's my answer. I do not communicate with the outside world, except under these conditions. Thank you.

MS. HUSSEY: Mr. Quinn, if you have that information I'll be glad to take it and I'll provide it to them as needed. Thank you.

MS. BENNINGFIELD: Okay, Rochelle and Tom, yes Tom?

MR. HAMILTON: Tom Hamilton. I think last year -- you'll have to check me on the bill number, but I believe it was AB 1574, which was the disclosure for home inspectors, just to see how that could fit into the entire process, to

expand that.

Because originally that bill had language about requiring HERS verifications or ratings in it. So whoever the assemblyman or state senator that carried it, maybe somebody can talk to them again.

MS. BENNINGFIELD: Okay, thank you.

MR. CENICEROS: And maybe provide some statutory basis to build from, and demark with some of the things people have been proposing here.

MS. GLASSEL: Lynn said something about some type of mandatory improvements. If the EEM funds were used for this I don't see how we can make it mandatory for them to do any one thing. These people were paying for this, this is their funds. So we couldn't ask them and say you have to bring your insulation up or whatever.

So it would just be what Jimmy Carter mandated many years ago, and the program works. The buyers are very sophisticated. I've had many people say "oh, I want new windows", that's what they have their hearts set on, but turn right around and say "I see the energy savings is in insulation. I really want new windows, but I see

this is where I'm going to save my money."

MS. BENNINGFIELD: So you're saying, because you're offering the incentive of additional leveraging because of the mortgage, their choice has to be involved. They have to have a choice at all levels.

MS. GLASSEL: Well, yes, they're paying for it. Nobody's giving them anything, so that's their money.

MR. BROOMHEAD: Cal Broomhead. That also gives you the flexibility of peculiar buildings. And in the residential stock there are a lot of really peculiar buildings out there.

MS. GLASSEL: Well, this program is nationwide, and I don't know if we want to go in and start changing it and tweaking it. It's worked for almost 20 years now. And this is just my little program. I don't know what you guys could do with other things, but this is just what I'm saying about this one little small piece of pie. It could save us kazillions of dollars.

MR. GUSTAVSON: Dale Gustavson of Cal-ACCA. Just a couple of quick comments. As Bobbi was talking I wrote down energy efficiency bill of rights. Some of this may be marketing and

wording.

We're talking about rating systems and of what value is that. And perhaps there's a way to codify what that checklist is. Maybe it's something a lot more important to the homeowner than it is to the salesperson.

The second comment is, I think it's sort of an overarching barrier, and --

COMMISSIONER ROSENFELD: Excuse me, Dale, I'm going to interrupt you for 30 seconds, if I may. I have a 2:15 date, and I did say I would bring down and read off a couple of websites. So I'll take 30 seconds to do that.

There are two volumes from -- courtesy of PG&E -- who sort of did the same support job for standards development which you folks did. The web address is www.calmat.org. And one of these two volume reports is called Residential, and has gas as well as electric measures.

One of the two volume reports is commercial, and I think it only has electric.

MR. BROOMHEAD: Could you read the title of the report?

COMMISSIONER ROSENFELD: Yes. The residential one is called California Statewide

Residential Sector Energy Efficiency Potential Study. I don't think you'll have any trouble finding them.

MS. AUSTIN: And it's also, the citation is also in our markets and potential report, if you want to look at it.

COMMISSIONER ROSENFELD: Oh, good, okay. And then, if you look in these reports you'll find conservation supply curves and tables, and the nice thing is if you look at the table they order by cheapest thing first.

So the tables are a little bit discouraging at first, because at first you think they have 40 issues or something, but there are only about ten or 15 that are really interesting, where the cost of conserving electricity is a few cents a kilowatt hour, and you want to go for them.

So I think they're quite useful. And then the summary document is called California's Secret Energy Surplus, and that is on the energy foundation website, which is www.ef.org. And I'm sorry, I don't have the next key word, but I did manage to find it recently, it can be done. Okay, thank you.

MS. BENNINGFIELD: Thank you, Commissioner Rosenfeld. Final comment. What Bobbi and Tom, I think it was both of you -- no, it was just Bobbi. There is an overarching issue. When you say the agents aren't going to help them and they're becoming a checklist industry.

It's fascinating to me, and I think if we could find ways to get through this issue through code it would make me happy. And that is that it strikes me as very odd that someone can make six percent.

In southern California, where I am, it's $650 to $750,000 for what really amounts to not very much work, and yet the people -- well, it's going to be a hard job making a living at it. But, as compared to the people that do the kind of work that we're talking about getting done.

It is simply not considered very, what's the word I'm looking for, it's not an elegant profession to be crawling around fixing holes in duct work. And it's not valued in dollars and cents in society. And how we can get to that, I keep asking that question. And it'll come up in the controls discussion as well.

The people, whether it's CHEERS raters

or people who look at HVAC systems and so forth, simply do not get paid the kinds of margins that, for instance, a real estate agent would get paid.

MR. BARDSLEY: Just in rebuttal, I wonder why they last only two years if they're making that kind of bucks.

MS. GLASSEL: That's all they need to make, and then they can retire.

MR. DUDLEY: Paul Dudley with Bristolite Skylights. That was a very practical observation, and that's the only way things work in business, you've got to be practical.

I just wanted to emphasize the fact that if this isn't worked out with the real estate people, this isn't a speed bump in their business, this is a major, major wall. You can't stop sales. It's just not going to work.

However, there's ways around that too. I know I just recently, not recently, ten years ago, I bought a house that was almost 100 years old, and received a loan that I think was something called a 203K, or something like that, an FHA thing.

MS. GLASSEL: 203KB, yes.

MR. DUDLEY: Yes, they actually loaned

me funds to fix up the house and it was put on a schedule like a construction loan. It actually was a part of my major mortgage. So maybe that's something that you could look through with them.

First of all, it should be, you know, you do an inspection and here's what the house needs to bring it up to what we need. And then who pays for that can be a negotiation of the sale of the house.

If it happens to be the previous owner of the house, potentially funds could be withheld until it was completed, but the sale of the house goes through.

And if it was something that was going to go on the part of the owner then it could be financed in the mortgage. And he doesn't receive those funds until it's checked off and it's all secured by a lien on his house, so if he doesn't do it he has a lien on his house, those kinds of people.

But I think if you don't really coordinate with those people, if they were sitting in this room right here today, they'd be going ballistic. It is a very hard job, I'm not trying to do it, not for six percent, not for any money

-- and/or be an air conditioning contractor. So anyway, just a comment.

MS. BENNINGFIELD: Cal, you had a comment?

MR. BROOMHEAD: Yes, I was sitting here thinking, I think it was when you mentioned the disclosure. I remember I had to sign off about half a dozen things. Yes, I got the pamphlet on lead and a whole bunch of things.

How can we inject, or at what point do we try and get education or education of the consumer into this, because I think that's where programmable thermostats fall down.

I mean, I just happened to be in a city's fire departments and installed programmable thermostats. And I finally went to one that was installed, and it was unintelligible how to operate them, and the guys at the station had just pulled the wires out and bypassed them.

They were just touching the wires together, and later they installed the switch. And I think that's one of the biggest issues is just training. And that whole education concept is an important part, and is there an opportunity here for some education.

And I'd hate to see it boiled down to just one more thing on the checklist that yes, they signed and got the pamphlet.

But it could easily boil down to that. I've seen the education components degenerate to that really quickly in the past. And I --

MS. GLASSEL: Randel, how much did PG&E spend for educating realtors with Staples-Hutchersen?

MR. RIEDEL: Lots.

MS. GLASSEL: Bunches. It has to be made, the buyer has to be made aware. That's all we're asking, that this opportunity is available. Not mandatory, but that it's made available to them. And the only way it's ever going to happen is if it's in writing.

MR. BROOMHEAD: In a checked box.

MS. GLASSEL: In a checked box, just like home warranty, home inspection, whatever.

MS. BENNINGFIELD: Okay, we need to wrap up this issue, but go ahead Mike.

MR. HODGSON: You could test how successful that was. Because I know of the Colorado Build Green Program, and they had an interesting logo -- something reminds me of a

frog, and I don't remember what it was, but they started doing, probably 11 or 12 years ago, had the Department of Real Estate there, as a requirement, adopt a notification that energy efficient mortgages were available.

And the homebuyer had to sign off. I don't know if there was a rating system there -- do you know, Tom, if there was? I think it was like a two or three star program, it was pretty basis.

But their level of lending on energy measures went up, but I haven't really followed up on it. So it may be something to look into, did the Colorado housing finance, CHAFA -- what we would consider CHAFA, I don't know what they would call it.

I don't know if it still exists. It was one of the circuits that made it to the speaking things about five or six years ago.

MS. GLASSEL: One thing, Mike. California probably has more service companies than any state. We are innovators here. Other states -- in fact, I'm going to be a presenter at the resident energy conference in March, and I'm presenting how to become an energy efficient

mortgage service company.

And I've got a lot of interest in this. They're seeing the value. How long ago was Colorado, ten years?

MR. HODGSON: Ten or 12.

MS. GLASSEL: Ten or 12 years ago we didn't have the energy crunch that we've got now. This is frontline news now, and the consumer is really seeing the necessity for this.

MS. BENNINGFIELD: Okay, thank you. Let's move on to commissioning, unless there's any final comments? All right, retrocommissioning.

It's -- retrocommissioning is a look at systems performance within a building, and the energy savings potential is huge, because we've found that, even in new construction a lot of times, the systems don't perform as designed when they're first put in, so as they age it progressively declines, it can be presumed. So there's quite a bit of savings potential.

The sales trigger is appropriate, but also the time of lease for commercial could be appropriate as well, because there's a lot of turnover in leasing and each occupant has unique needs. And each occupant may need to alter the

HVAC system or the lighting system to suit those needs.

We think that there's a large potential for expanding what is considered commissioning. And we're starting discussions now with the California Commissioning Collaborative to look at how their processes could feed into our recommendations.

So is there anybody here -- well, Tony, you're from, you're a representative of the California Commission Collaborative. Is there anybody else here? And Dale, too.

So I'd like to hear from you two about what you think it might take to use the tool of commissioning in a mandated sense to help save energy in existing buildings.

I mean, you've already talked a bit about how there's proven technologies out there that can improve the performance and optimize the performance of systems. Can you elaborate on that a little bit? Under what conditions, so what's the cost. What would you suggest as a recommended trigger?

MR. GUSTAVSON: Dale Gustavson, Cal-ACCA. First off let's make sure, I'm going to

stick primarily to HVAC and controls, because that's what I know most about. I actually think the 2005 standards begin to get at the issue of new installation of HVAC or replacement of commercial HVAC.

Because it's going to require certification of the insulation and in fact the systems is working. So I think there's a trigger there. I would probably go -- I haven't thought beyond, I haven't figured any trigger points that I can fathom as being palatable on the actual maintenance side of existing buildings. If I come up with it I'll let you know.

MS. BENNINGFIELD: You say there's a big problem with economizer operation. Do you think it's viable to say when you lease the building, if there is an economizer present, that it needs to be tested or recommissioned or, you know, on that simple level is that something that you think would be viable and acceptable?

MR. GUSTAVSON: I think in that case you've got the same issue you do with renting of a residential piece of property. The challenge would be to make sure the owner of the building was doing the work prior to leasing it, so the

same strategy as we talked about earlier.

Perhaps, in order to be leasable, then the economizers must be working properly. And maybe that connects to what we were talking about earlier with the utility trigger.

I'm not the most technical person in our association, but I'm hearing both at the street level and on that on some work being done in the northwest and some work being done in New York, that this diagnosing an economizer operation is not necessarily easy. And not necessarily inexpensive.

MS. BENNINGFIELD: Okay.

MR. GUSTAVSON: Replacing it is relatively inexpensive. But then there's a question of how much energy you're going to save incrementally, and you don't know that unless you know how the current one is operating.

MS. BENNINGFIELD: Thank you. Yes?

MR. AHMED: Yes, I have a question on this retrocommissioning. Are you envisioning some sort of a phase, on a calendar or every five years or a certain frequency of buildings, or only at the time of sale or lease?

MS. BENNINGFIELD: At this point we're

only considering at the time of sale or lease. So we certainly would want to consider maintenance, regularly scheduled maintenance. Somehow that might be more appropriate for a voluntary strategy.

But leases are typically three to five years. I know five years is quite a bit of time to wait between servicing. Three may be a little better. We really don't have a time frame in mind, because the types of occupancies, and the types of systems serving those occupancies are at such a wide range.

We'd have to look at the conditions from which we'd want to require. But at this point in time we're looking at are you leasing the building, has it been commissioned in the last two years, let's say, if no then it would need to be commissioned before it could be occupied.

MR. AHMED: The other side is that commissioning is a very general term, and how are you going to justify cost-effectiveness as far as commissioning. What will be the assumptions of what commissions of the buildings are, and what will they be in future is kind of hard to determine.

So it's going to be hard to justify commissioning every time there's a change of lease or occupancy. That's going to be hard. So it may be better if we have some sort of calendar thing that, once you start and then every five years you need to do one major recommissioning, or something like that.

Something to think about, because it's kind of hard to pin down. I mean, specific measures are easy, but re-commissioning, how much you'll save, nobody knows.

MS. BENNINGFIELD: Yes?

MR. BROOMHEAD: We had a commercial energy conservation ordinance in San Francisco, and essentially it died for over enforcement issues.

But one of the things they found in trying to make that ordinance work was that the large buildings -- the sale of lease of small buildings is probably a different picture -- but in very large buildings, of which we have a number of large buildings in San Francisco, as you probably all know, that they are never sold.

The shares are sold in the company that owns the building. So you may have turnover in

who owns the shares of that building, maybe a 100 percent turnover over a period of a couple of years, but the actual ownership, the deed, remains in the hands of that holding company.

Now I believe that our tax office, because they're interested in transfer taxes and having those get paid, does some kind of watch of this, and they are able to get in and track that and still charge a portion of the tax to each one of those shares of transfer.

But I think that that would be dependent on the capacity of the local tax assessors office, to be able to is how sophisticated they are is how they're going to be able to get at that. So it's something worth investigating more.

Because we're going to try and reinstitute our dead commercial energy conservation ordinance. Hopefully in the next couple of months I'll be able to give you more information about what that actually looks like, because I wasn't involved in that originally, directly. And I don't have a lot of that information.

MS. BENNINGFIELD: Thank you. Could you tell us a little bit more about how it died over

enforcement issues originally?

MR. BROOMHEAD: You know, building inspectors -- well, I guess, a couple of things. One is that in order to have an effective ordinance means you've got political support, and that you've also been pretty good at doing what Randy was saying, about bringing in the real estate folks early, because you want to deal with the probable opposition, or neutralize your opposition.

And if that means changing what you're doing, so that it's more palatable to them, then that's the negotiation, you're entering into a negotiation process and it's a good, valuable thing to do.

But over time, if the political landscape changes and your support for doing the action in the first place erodes, because you don't have a constituency that's politically active and organized and forceful at that level, you always have the kind of unending and continuing self-interest of those who are in opposition, who will always be looking for opportunities to get rid of that.

And so you take that kind of ordinance

and place it in the hands of the enforcement, in the hands of a city department or a county department who's -- it's not their main mission, their main mission is something different.

And in this case it was the Department of Building Inspections. Their main mission is life safety issues, and they're much more interested in health, safety, fire, and making sure that the department isn't going to get sued for having inspected something that, you know, fell down a week later.

So their mission is not energy efficiency, and I think, over time, it just kind of went away. And they didn't pursue the enforcement of it as was needed, didn't devote the administrative time to send out the letters and check the databases and see that everything was done.

And therefore, over time, commercial real estate agents noticed that sometimes nothing happened. And after awhile it became standard practice to not do anything about it, and it became a dead ordinance.

So, again, as I get further detail on this I will forward it to you, but a lot of the

documentation of boxed up in the year 2000 and sent off into the mountain, so I'll be turning it all back gain and provide that to you.

MS. BENNINGFIELD: The mountains of San Francisco?

MR. BROOMHEAD: Right, Hetch Hetchy up by Warehouse. So, I think, those are the two issues the sort of ongoing constituency report that's needed to maintain something in the face of another constituency that has an opposing interest that will always be there.

And then -- which would be the commercial real estate agents and commercial property managers. And then the fact that you didn't have an agency who's central mission was to make sure that this mission was accomplished.

And those are kind of two structural issues that you're going to continue to have. I think maybe we won't have the political erosion of support over time that happened to the San Francisco SECO. I think maybe the future, the next decade or so, is going to be more solid.

And that once something passes that five-year mark it becomes institutionalized, and then everybody just looks at it as a matter of

course -- well, "this is what I've always been expected to do, well I think it's the law I have to do it this way, or I'm not doing my job." And then it happens as a matter of course, and you don't have to watch it so closely.

MR. QUINN: Chairman, may I comment to the gentleman from San Francisco? I made a presentation in San Francisco in July, 2002, on behalf of the construction specification Institute.

There was a published article in the ASHRAE Journal of June 2002, and I brought the subject to the attention of those members in San Francisco, to bring the attention to the building inspectors of San Francisco, as to how to neutralize building owners, as it applies to building specifications.

And if you will recall what I just alluded to a few moments ago in terms of building safety, electrical, etc., then if we could neuter lawyers and neuter politicians without being accused of discriminatory practices is just exactly what this gentleman is alluding to, it's that nobody knows what energy is or how to measure it, except for a few of us.

And when you allude to energy and how to measure it or how to control it, if you're doing it on a centralized basis or on a zonal basis, what is your design approach? You cannot correct the design approach of the first mistakes that were built into any building.

I thought we learned here many years ago what design approach and design intent was all about. That's exactly what the retrocommissioning, or new commissioning group is all about that is now being headed by PG&E.

I've had meetings with those people for four days in Palm Springs -- you were there, you weren't there -- my whole question is whether we call it neutering or neutralizing, we are here to institutionalize the constitution of the United States.

What are we doing otherwise? That's exactly what I'm trying to explain, is if you're interested go to Reno, and if you're not interested in how energy is delivered into a building then don't go.

It's called specifications and how to write a specification so you can neutralize an owner who doesn't know one damn thing about energy

to begin with. Thank you.

MS. BENNINGFIELD: Thank you.

MR. CENICEROS: Thank you. Cal?

MR. BROOMHEAD: I was going to try another technique, but I think -- an idea that I had written down earlier that came to me, was this whole issue about to take this whole approach about using Title 24 or expanding the authorization, is to make sure that we can improve our efforts to enforce the existing Title 24.

And that kind of ties in to issues with our own building department, is that's something, we need to develop a very collegial relationship with them to improve the enforcement of Title 24, at least discover what kinds of hitches that we're having in our own building department.

And I know that the Commission already has an effort at looking at this, and it's probably something that is going to need to be strengthened. Not just training, but kind of being on the ground and looking at each building and how it operates if you're going to understand how to make it more effective at the local level.

MS. BENNINGFIELD: Yes, I think PG&E is going to do that relatively soon, a short-term

project to look at -- yes, Mike?

MR. HODGSON: Just kind of a separate issue, going back a few comments on commissioning. It's my understanding now in the office and retail multi-tenant market that most leases -- and it's not the 2000 energy crisis, but before that -- are now requiring quarterly maintenance.

I know we've been exposed to that. We require it in some buildings that we own. So whether the owner pays for it or whether the tenant pays for it -- and being married to a commercial real estate broker, I get to review these from time to time -- that now is a fairly common part of a rental agreement, if you will, for --.

And I think it fits within your commissioning, so that may be an avenue for you to explore. Because it's really an ongoing maintenance issue. And you don't want them there once every five years or once every three years, you want them there every three months, cleaning the filters and doing this and that.

And it also is an issue that you could sell to BOMA, which is a very powerful group among building owners and maintenance groups. And they

basically are the ownership of the large buildings. And they are very cost-conscious folks. And this is a durability and longevity issue. Energy is probably fourth or fifth in line, but we want it from the energy standpoint.

So I think you can make that case and bring -- I know we're going to have fun bringing CAR into this discussion. I think you can get some allies like Cal is, let's build our support team here. I think you can bring BOMA into the picture, and have them, from a point of cost-effectiveness, support what you're talking about in commissioning.

MR. BROOMHEAD: Did you just say that building leases are now including --?

MR. HODGSON: The ones that I'm exposed to, which are usually multi-tenant leases. So there's not a single owner, it's maybe a retail strip, and there may be four owners or 25. Those usually -- in fact I have not seen one in the last four or five years that does not require quarterly maintenance of the mechanical equipment. And that's a maintenance contract in place at tie of lease signature.

MS. BENNINGFIELD: Okay, so the proof is

the signed maintenance agreement of the --.

MR. HODGSON: Right. And then you usually have someone -- BOMA is a big trade association of people who own buildings, right? And they will have, you know, there's a whole group out there like energy efficiency mortgage experts, there's a whole group of folks out there that manage buildings.

And one of the things that they do, and I agree it's a check the box thing, but they have to make sure this warranty or this maintenance agreement is in place, or else you're in violation of your lease. And if you're in a place you want to stay you tend not to want to be in violation of your lease.

MS. BENNINGFIELD: They're not required to forward reports quarterly, though they're required basically to take the liability that they will maintain the contract?

MR. HODGSON: They're required to make sure that they're in place.

MR. GUSTAVSON: If I could, Dale Gustavson, Cal-ACCA. I agree, more landlords who are in triple net situations are requiring their tenants to implement quarterly or at least semi-

annual maintenance.

The problem with it is, unless they control the company that's doing the work themselves-- and actually I happen to know of an example in Texas where the landlord picks the air conditioning contractor and the tenant pays for it. But I think that's really in the minority.

What tends to happen is the tenant will get a couple of bids, they're going to give the contract to the low bid contractor. And the problem with that is that most contractors doing maintenance in the marketplace today are actually losing money on the maintenance contract in order to be the one who gets the call when the unit breaks.

And most of those, what we affectionately call the low-bid scalawags in the industry, most of them are not interested at all in energy efficiency. I mean, that's the last thing on their mind. They barely care if it's working.

What they're looking for is the replacement, which is the big sale. There's an area there where just the requirements is not going to get us the reports that we need, or any

kind of validation that energy's being saved, or frankly that it's operating safely or that the life of the equipment has been extended.

MS. BENNINGFIELD: Thanks, good point.

MR. HODGSON: I can only speak from my experience. We own an office building, we have multi-tenants. We require it ourselves because we thought it was a good idea. Our experience has been very positive. Yes, things have broken, but we've been in the building for 11 years and we've lost, you know, an air conditioner here and there.

But every quarter they show up and they do their inspections. They're very professional. It happens to be a very large company throughout the state of California. And we're very satisfied, and I can see the value in doing that.

MS. BENNINGFIELD: Thank you. Okay, I think it's time to move on to controls. I notice we don't have a break built in to our afternoon session.

MR. CENICEROS: We're about halfway through the afternoon session now. Do people feel they would like a five minute break, or just come in and out as you need to?

MS. BENNINGFIELD: Okay, Tony, did you

have a brief comment?

MR. PIERCE: I was just going to add on retrocommissioning, the California Commission Collaborative met about two weeks ago, and we're wrestling with the problem. And I think it's analogous to what Mike Hodgson mentioned earlier with respect to the Commission getting a rulemaking for HERS system for existing buildings.

There's no current commissioning standard for existing buildings, so we're still working on that. And there's a lot of people, you know, is it retrocommissioning or re-commissioning or continuous commissioning.

So I think that, given the time line for any legislation that would follow on AB 549, I think we do consider it, continue to consider it, and what trigger is appropriate for it. I like the idea of looking at -- obviously we need to define commissioning, and the standard once we have one for existing buildings will let us do that -- but focusing on measures like the economizer that you mentioned, Lynn, I think is a good thing to do.

A measure or a compliance or a component of a compliance that has been well-documented as

having a poor track record, and early failure, and presents itself well for something that needs to be probably re-commissioned or continuous commissioned, which is a trademark term, so I have to give credit to the people at Texas A&M I guess.

But I think that we can continue to put those in, at least our report to the Commission, that some type of retrocommission activity for commercial buildings is appropriate. You know, we just need to define it a little further, and then see how it fits in.

MR. AHMED: I just wanted to add to what Tony just said. I think it's beyond just scheduled maintenance. Commissioning actually encompasses something much beyond the scheduled maintenance. So what Mike said is true, but you need to go beyond that.

MS. BENNINGFIELD: Okay. All right, let's go to controls, the topic of controls. The premise of having controls installed in a building is to turn off the energy when it's not needed. Using energy when it's not needed is wasteful.

The problem is, when and how energy is used involves personal decisions, and the motivation to optimize controls isn't always

there. And I'm talking in the broad sense right now of both HVAC and lighting controls, but it's especially true with lighting controls. There's been a lot of trouble with people bypassing their lighting controls, and you have the anecdote of people bypassing their thermostatic controls as well, so it happens a lot.

MR. BROOMHEAD: I've seen lighting controls bypassed with just a piece of masking tape.

MS. BENNINGFIELD: Yes, it's easy to do. Easy to install, easy to bypass. But optimizing the use of controls is sort of a tougher problem that we would like to look into further. And I can give you an example of a small office where you might put an occupancy sensor in.

Well, the behavior within that office is definitely going to dictate how much energy is going to be saved, and the standards now say 20 minutes of vacancy time is when the control would turn off the lights.

But you might have a person where a five minute delay might be the optimum for that person. And they have no problem with the lights going off and then coming back on when they enter the room.

Some people don't like the lights automatically going on, they're not quite used to that. And in that case maybe the person never leaves for 20 minutes, so the occupancy sensor would never work, because they're in and out, and maybe a shorter time delay would work better for that person.

There are some types of lighting controls now, smarter controls, that kind of learn occupant behaviors. And we feel as though it's important to start thinking about how to standardize what the performance criteria for controls are, lighting controls and HVAC controls. How they talk to each other, how they talk to the utility, how they learn from the occupant to make them smarter so that they're not bypassed.

The ideal thing would be to have the controls be seamless to the occupant, so they would have to experience a discomfort or a lack of light in order to, you know, have the energy efficiency noticed. It would just be optimized automatically.

And there is a tie-in to the next topic, which is demand response programs and tariffs. Because a lot of these are looking at targeting

peak energy use, and controls are a very good vehicle for shaving that peak in buildings.

So we can discuss both at once if appropriate. If someone has an issue on controls in particular, though, let's talk about that now. And Dale has a plane to catch, so we'll give him the floor.

MR. GUSTAVSON: Dale Gustavson, Cal-ACCA. I'll preface my remark by saying that I thought for my 15 years in this industry that every bootleg should have a control system in it. On the other hand, some of the direction that you've suggested -- achieving some of these things have been extremely difficult. It's been like pulling teeth to get manufacturers on the same page.

And it's hard for me to even imagine, when you mention on page 36 of the report, the last paragraph, consistent user interfaces and consistent control algorithms. And that it may in fact be within current standards authority to require that, or maybe it's just that they be working correctly.

I've been scratching my head for that entire 15 years to determine how you can ever get

the manufacturers, who use different control algorithms and different user interfaces, to differentiate one another in the marketplace.

From a manufacturer perspective that is how they differentiate themselves, otherwise they become a distributor of vanilla, you know, whatever we've agreed to with our knowledge of the industry.

That being said, I think it probably can be worked on, and you've suggested convening a working group in this case. And my best suggestion on the working group is tht you definitely add controls distributors to the list. Way too often overlooked.

It depends on the manufacturer as to whether or not they use distribution, but there are some major manufacturers that have distributors. Those distributors play a very important role in terms of the sale process, the customer support afterwards.

And that you also add contractors. You've got the building operators here, but there are three groups of contractors I would say that are touching controls.

One would be the major controls

contractors, the second would be what I would describe as independent controls companies that specialize in controls, and that's all they do. And then there are mechanical contractors, some electrical but primarily mechanical contractors, that have their own control groups.

And all three of those entities and the distributors would have completely different perspectives on how to go about getting this done, and that's been one of the barriers. So to have all those folks represented in the working groups may seem like a lot, but I don't think so. I think it's absolutely critical. They all interface with one another in the marketplace.

MS. BENNINGFIELD: Is there a way to bypass that problem of individuality by just having the most basic performance specification, you know, the controls shall be able to do A, B, and C. And is there some level of agreement that could be achieved amongst the different contracts?

MR. GUSTAVSON: I believe that already exists. Now, backing up to the top of page 36, it says "control systems could also be designed to include fault detection equipment with warnings and self-correction."

And I couldn't agree more, and what might be characterized as the final phase of the PIER projects that are wrapping up now there is in fact a project that is looking at adding the fault detection diagnostics to control systems, and the violability of doing that.

In fact, that fault detection, some of the fault detection algorithms that are being looked at are the very same ones that are used in the portable diagnostics that I've been talking about that measures the capacity and efficiency of a unitary system.

So there may be some opportunities to require some diagnostics algorithms that go a little further than the control algorithms. But I think it's pretty dangerous looking at the control algorithms, because you might get Johnson Control saying "no, our algorithm is better." And you're going to get Honeywell saying "no, our algorithm is better." And you're not going to settle that with code.

But something on the fault detection diagnostics that is not yet owned by that industry, there may be some opportunities to push it along, I agree completely. In fact I'm pretty

excited about it.

MS. BENNINGFIELD: Good. Thanks. Any other comments on controls?

MR. PIERCE: I have a comment and sort of a question. Tony Pierce, SCE. There are products coming to market, both res and non-res, that would allow -- and this leads to the demand response controls that Len mentioned as a tie-in with uses of controls.

There are products coming to market that would allowed the utility, for example, to send a signal and request a load reduction at the customer site. And they're not proprietary, universal in the sense that it's not brand-specific or it doesn't have to speak a specific brand language.

Of the folks here, I'm curious, is there any reaction to -- going back to the topic of AB 549 -- if we were to require that, or if at a certain trigger event that those types of controls be installed? I'm curious to know if anyone has a reaction to that?

MR. HODGSON: Tony, we have that as part of some of the development that's being done right now. So in some areas that are, you know, load

restrained, or in some experimental areas with some utilities, mostly muni's, they are requiring that load controls be installed in a large-scale subdivisions, something like 800 to 1,200 units, you know, multiple builders.

MS. BENNINGFIELD: Are you talking about radio control? No, okay.

MR. HODGSON: Line load. Line signal to the compressor and then to the --

MR. PIERCE: Is that the builder and the municipality? I mean, I'm looking at something that goes broader than that.

MR. HODGSON: No, it's the utility request. We're working with the builder, which I think is the interesting -- it's a demand on the utility side. "If you want a meter you're going to do this." And it's due to some constraints that they have, they have identified areas that they need to be very, very careful of.

MR. CENICEROS: Mike, I assume that the homeowner has the option to enlist in a program that actually utilizes those control devices?

MR. HODGSON: Bruce, I don't think there's any option, I think they're there.

MR. CENICEROS: The devices are, but --

MR. HODGSON: And there is no opt out.
MR. CENICEROS: Interesting, okay.
MR. PIERCE: So that's from new construction?
MR. HODGSON: It's actually a, it's not a requirement, it's a tentative map approval requirement.
MR. CENICEROS: Really?
MR. HODGSON: Yes, there are some very specific areas that have popped up that are load constrained. And this is an option that they're trying.
MR. PIERCE: But going back to, I think Cal's question, is that new construction?
MR. HODGSON: Yes, it's new construction, I'm sorry.
MR. PIERCE: So if we were to, if out of this AB 549 study and effort, if some recommendation to the Legislature was to go forward saying that, you know, this should be a mandatory measure at trigger event X that these controls be retrofit in existing building stock, you think that's viable then, based on your experience with the new construction?
MR. HODGSON: I don't know the

electronics of how --

MR. PIERCE: Not getting into technical details.

MR. HODGSON: Do I think it's viable? No, I think once the homeowner's there, it's there. I think you'd have them all sorts of property right issues, that when you're in a tentative map approval you don't have. In fact, building codes don't even at that time apply.

So it's after tentative map approval, when you go to final map, then codes take over. So as a condition of approval, everyone who buys in that parcel must acknowledge those requirements.

So I think that's where you have them. It's a master plan concept. I don't think going backwards, Tony, you'd have that ability to do that.

MR. GUSTAVSON: Are you talking about residential, or commercial also?

MR. PIERCE: Both. The technology is there, and there's pilot projects, there's new projects.

MR. GUSTAVSON: And are you suggesting that it might be possible to install algorithms in

existing controls systems, to retrofit them to do this, or does this, it would have to be in a mandate that any control systems installed from this point forward include the capabilities?

MR. PIERCE: Well, I'll respond specific to, say, commercial buildings. There are devices coming to market that would be installed in series, between the meter and the control system, that would receive a signal from a utility, and alter a signal to an EMS, for instance, that would say, if you have a demand reduction algorithm within the program it would alter the input signal.

So that's one technical description of why it wouldn't have to speak Brand X language.

MR. HODGSON: Tony, to respond, I'm not against it, I'm just saying there's other hurdles there.

However, we were talking a little bit, we just barely scratched the surface of possibly utility rate structures, so you may have a commercial rate, and as an incentive to go to this type of system you may change that commercial rate structure for that owner/tenant. And that may be an incentive to do that, rather than saying

"you're going to do it."

Because once you do that I think you're going to have a different issue with regards to what are the rights of the existing ownership and how did they buy the property and, you know, I don't think we want to go there.

MR. AHMED: I was going to mention the same thing, Mike. I don't think you can dictate to commercial customers, they don't want to be shut down. Certain customers may not want to be shut down for any reason under any circumstances, so therefore it cannot be mandatory, it could be voluntary.

And I think it could be tariff based, which could be mandatory. If you elect this tariff, then it's mandatory, you know, something like that.

MS. BENNINGFIELD: Yes, the condition of the tariff. Yes, Cal?

MR. BROOMHEAD: Which is another way to it, if the tariff is mandatory and you have to buy the hardware. The tariff is available now. The CEC has just paid to have smart meters installed in all the buildings over 200 KW. I know that several hundred of them went into San Francisco,

and we're going to try and get them to activate that.

I think there's certainly an issue of what kind of facility it is, and what kind of loads we're talking about reducing on an on-call basis.

And as far as, I mean I think there are other ways you can structure the incentive and having a tariff which is actually beneficial for them to do it, which has to be proven in the pilot I think that's been approved by the CEC.

But also to think of the other triggers that are on this list, alternate sale and lease, as a way of getting to it. But maybe think of it as kind of an option, if you buy into one item that we want to get on this list, or any package of them, or -- you can opt for that, or you can do demand reduction.

MS. BENNINGFIELD: It's like an offramp. You can do this, here's another offramp.

MR. BROOMHEAD: Right. If you don't like that, then you can do this. Then at least they're given options, but some buildings will buy into it, and you get some demand reduction out of it.

MS. BENNINGFIELD: A choice of mandates.

MR. BROOMHEAD: And on a residential level, in San Francisco we don't have any air conditioning loads so it's actually -- I'm actually interested in electrical resistance heating in our winter peak, because that's where we have an additional problem.

You know, we were talking earlier about what kinds or requirements for air conditioning, I mean do you change it out, or what do you do to it during the trigger. And maybe that's an option, well if you don't want to replace this old, decrepit equipment, then you have to be on this. And then it becomes a matter of choice.

MR. GUSTAVSON: I think one of the most powerful ways to get an air conditioning load through this vehicle is to make sure that the -- I think we can get further on energy savings if the control algorithms involved when the utility triggers changes the set point of the air conditioning, as opposed to shedding it.

And I know there's some programs in different parts of the country where, on the residential side, that's being done. Whereas, you know, once upon a time we tended to turn things

off in those programs, now they're sending a signal to a smart staff that raises the set point by four degrees or six degrees.

And I think it's much easier to sell as an option, even in the commercial sector, than something where demand control shedding programs are in place. And I think if they aren't, most control systems are certainly capable of doing that.

And I don't know where tha goes along with the scenario that you're talking about, but it's a far better strategy and one that you might be able to regulate further than shedding.

MR. RIEDEL: This is Randel Riedel. I'd be happy to share the information that's coming out of two pilots that I'm managing in the residential sector, specifically on demand response.

And additional education to the homeowner as to issues of energy efficiency. so I'll supply that when we get the final reports from those two projects.

MR. BROOMHEAD: Can I add that, I get personally upset when I think of using air conditioning in a 5,000 square foot home that's

occupied by four people somewhere, compared to me with my family of four living in an 1,100 square foot home in San Francisco.

Making the air conditioner more efficient is one thing, but downsizing the existence of the entire building would be a great boon to making the whole thing more efficient, and maybe controlling the amount of conditioned space that they're allowed to have would do something, or incentivized to have would do something, to eliminate some of that.

MR. PIERCE: Could you live in a less than 1,100 square feet?

MR. BROOMHEAD: I do. We went from 900 to 1,100, that was an upgrade.

MS. BENNINGFIELD: I think Marin County has done something in that regard, that you cannot build a house that uses more than this house times the allowable energy of this house. If you want your house bigger then you have to compensate some other way.

MR. BROOMHEAD: I'll have to call them.

MS. BENNINGFIELD: Yes, so you'll need to call them.

MR. BROOMHEAD: Although that doesn't

typically happen in San Francisco, because space is at such a premium. You pay for the land, not the building.

MR. QUINN: All that empty nesting.

MR. HODGSON: I was just curious, Randel, what's the timing of those projects that you're working with on kind of consumer demand and pricing. Are the reports coming out in a year, or six months, or --?

MR. RIEDEL: Yes, we should have then between three to six months, so I'll send you copies.

MR. HODGSON: I'm real curious about how that's going, that's such a big issue out in the marketplace, and I'd love to know what's going on.

MR. RIEDEL: Okay, well, we'll talk about it.

MS. BENNINGFIELD: Can I ask you a question, Mike? In that area where they are required to have these controls, how are the HVAC contractors dealing with it? Are they putting in larger systems, are they concerned about callbacks, or --?

MR. HODGSON: Lynn, it's actually just come up.

MS. BENNINGFIELD: Okay.

MR. HODGSON: The homes themselves are just under construction, and I don't know the answer. I didn't even think about, boy if we had a four ton load we better put in a five ton. I didn't even think of that, and I don't know if that thought process has occurred.

In the Title 24 work that was done, and they actually did have HVAC designed loads, and they are, you know, correctly sized units, I would anticipate that they are not oversized. You know, they are sized appropriately. But I don't know the answer to that.

MS. BENNINGFIELD: Okay. I'd be interested in whatever, when the data comes out next summer or whenever. Okay, any comments on the special tariffs and demand response programs? We got into that quite a bit already, and there is now forthcoming in three to six months which we'll try to point to in our final report. Any final comments on that issue?

Okay, let's move on into the last one, which is encouraging and facilitating the development and adoption of model retrofit ordinances. And we have the key person with us

today to talk about that.

Our idea here is that, looking at a time of sale mandate, a good proving ground might be locally adopted ordinances. And it's possible that more localities have not adopted ordinances because they don't have the technical work behind it to support it, to promote it, to change the political climate.

Or they don't have the political will to do it in their community. But some of these barriers could possibly be moved with technical assistance from the state.

If the state were to produce like a local ordinance tool kit or something similar that said, here's some good ideas to include in your ordinance, here's some suggested working for the ordinances, here's some cost-effective analysis tailored to your particular climate zone and your particular mix of buildings.

If assisting them in this way with the technical information might facilitate more frequent adoption, and then the state could track the effectiveness of the programs, learn from them, and then perhaps down the road look at a statewide mandate.

So that's the thinking, it's sort of a bottom up strategy instead of a top down strategy in terms of getting a mandate going. So are there any comments on that particular issue, merits or barriers. Yes, Mike?

MR. HODGSON: I think Cal has a good case study that it sounds like we need to learn more about. The city of Davis has had an ordinance for about 20 years on the retrofit market, we should learn more about what they've done and how successful it's been.

It would be good to contact the local government group -- what is it called, I can't remember?

MR. BROOMHEAD: Local government commission.

MR. HODGSON: The local government commission and ask them if they have sample model ordinances. They have a fairly active energy, a couple of consultants. And there may be something like that out there already. I think it's a great idea if you give them a model ordinance.

City councils tend to adopt things like this without really realizing the consequence. They're already elected, and then boom, then

things happen. So, you know, it's a good testing ground.

I think that'd be -- look at some that have actually worked, and maybe Cal's is an example and needs to be improved, or it's a good idea. "We ran into these barriers, I don't know what they are."

I would think there would be a Davis person here. No? I know I lived in Davis as a student, that was a long time ago. But at that time they had a retrofit ordinance.

MR. BROOMHEAD: Yes, I used to work as a weatherization contractor under the Berkeley RICO ordinance, and Berkeley adopted a SECO based on San Francisco's commercial ordinance. And they got theirs running just as ours was dying.

I think one of the key differences as to why the RICO worked and the SECO didn't work -- and I said before about the problem about the building inspection not really wanting to enforce it -- whereas RICO, the actual enforcement point was whether the recorder would record the deed.

And to them it was just a checkmark, you know, do I check the box because the certificate is in the stack of things that are stapled in the

stack of stuff, or not. And it's just a clerk -- "oh, it's not there, I can't do it."

MR. HODGSON: You can't record it if you can't find it.

MR. BROOMHEAD: Exactly. So the Planning Department was keyed with tracking and providing all the support work, and they got the lion's share of the $15 filing fee for this little certificate, but it had a point of enforcement mechanism that was so simple that it was a very solid way of moving forward.

Whereas with a building inspection it depended on a much more proactive administrative structure to make it happen. And so I think -- but I really applaud the idea of working with local governments on developing retrofit type ordinances or any kinds of ordinances.

We're considering looking at buildings that are, you know, 500 KW or one megawatt and up, and putting on certain restrictions as requirements on them for performance verification periodically, for making sure that their T-12 to T-8 retrofits are done. Kind of the basic stupid stuff that everybody should be doing, and there's support from BOMA for doing that.

And that's a different sort of thing as "do you want to occupy a building in San Francisco and it's this size and that's what you have to do." And after we get that established then maybe work it down through the sizes so that we're getting to smaller and smaller buildings, but for those large buildings they have staff that are there.

When you go to smaller buildings that's a different issue. There's nobody there. There's nobody even there in some buildings to fix the door knobs when they break, they've got to call somebody to come over. So it's harder to get at those buildings.

But anyway, just to support the idea of working with local governments. Because I think that the structure of local governments, how departments are organized, how they're populated, who are the people that are in there, characters, how the local city structure is organized, is going to have an impact on really the best way to enforce something. And that's going to have an impact on the design of the program.

MR. HAMILTON: Something similar, I don't know if it was mentioned in the report, was

the CEEP program. I mean, it's been really successful on the new construction side. Could you design something similar, since you have the framework already and it's a proven product.

It's, you know, cities are accepting it or adopting it. Designing something along those lines for the existing side.

MS. BENNINGFIELD: Good suggestion. Yes?

MR. HODGSON: Tom, we have our advisory meeting next Tuesday, and I can just float the idea of how we would take the CEEP program in the new construction market, and move it into the retrofit. When do they think it's a good idea.

Now recognize that the local representative here is typically the building department or the planning department. But if we could push all the honus down to the recorder, and it's a check the box, I mean the building department would sign off on that in a heartbeat because they don't have to do the enforcement.

You know, there are 71 jurisdictions in the program now, and there's a lot of people with a lot of input. So I'll float the idea. It's kind of a busy agenda, but it sounds like a good

lunch topic. I could start probably --

MR. HAMILTON: Yes, because that's not what you file with the Legislature. If it is acceptable to the group you have potentially 71 pilot cases for existing housing.

MR. BROOMHEAD: That's scary.

MR. HODGSON: Well, if you could design a model ordinance that was fairly simple, and had a simple check the box enforcement, that has a couple of jurisdictions that are wiling to try it -- that's how CEEP started, a couple of people tried it.

And then other building officials started talking to those building officials and found that it was advantageous with their relationships with the building community to do that. So, you know, after that it just took off. And that's what you want is success.

And a model ordinance, if you could get 100 jurisdictions to adopt a model ordinance, and then CAR has a really more difficult time opposing something like this on a statewide basis --

MR. BROOMHEAD: Too many meetings to go to.

MS. BENNINGFIELD: Yes, you'd have

momentum.

MR. PIERCE: I'm wondering too is there an opportunity to learn from a past failure. I think -- Cal, did you mention that you worked on a program in the city of Berkeley that was on its' demise or failed?

MR. BROOMHEAD: No, in San Francisco the commercial ordinance failed. We're going to try and reinstitute it. I'm in the process of dredging up all the old reports and everything, and when I have it all in front of me then I'll pass it on.

MR. PIERCE: Does Berkeley still have a retrofit ordinance for energy?

MR. BROOMHEAD: Berkeley's is working, and I haven't talked to Neil to find out how it's going, but I will be soon. In fact we've been meeting with the, kind of the California cities coalition, I forgot what our informal name is, but the local government commission has been sponsoring a series of meetings, and the next one I believe is in Santa Monica the first week of December.

But what we're going to be talking about is laying out a couple of different topic areas of

things that cities and counties can do. And two of the things that were mentioned were ordinances and small business programs.

So we're going to have some special sessions about different topic areas, and I'll just try to get the one on ordinances happen sooner than later, and then we can pass that information on to this group.

MS. BENNINGFIELD: Would it be beneficial to have support from the state or utilities in evaluating and monitoring these pilots as well?

MR. BROOMHEAD: That would be great. I would love to have some support to go and look at the records from our own planning department. Because I don't know how many -- in 1992 we had gathered a report, because we had support from LBL.

And they looked at the eight years or so of the ordinance that 15,000 homes had been certified under the RICO, but I don't know where we are now. And we haven't done phone search, or done any site visits or anything to see how it's being enforced at this point in time.

MS. BENNINGFIELD: Or to see how much

energy it's actually saving?

MR. BROOMHEAD: That would be another whole piece of work.

MS. BACHRACH: Devra Bachrach. Just for the purpose of coordinating, I wanted to just alert you to the fact that PG&E and the city of San Diego submitted a proposal to the Public Utilities Commission as part of the 04/05 solicitation process that does propose to explore RICO and SECO's ordinances for -- and I think Silicon Valley.

So it might be worth talking to them as well as, you know, if they are funded and do start that process.

MR. BROOMHEAD: Is it San Diego, or--?

MS. BACHRACH: No, San Jose.

MS. BENNINGFIELD: Oh, okay.

MR. CENICEROS: Thank you, Devra, we didn't know about that.

MR. AHMED: The question I have is, your discussion on local ordinances, are you thinking only about only for suggesting certain ordinances and changes in the standards for retrofit, or some of these ideas that we talked about today to be included into the local ordinances?

MS. BENNINGFIELD: No, the first. They would look at what kinds of measures make sense. We would help them figure out what kinds of measures make sense to be required.

MR. AHMED: But only during retrofit?

MS. BENNINGFIELD: Only at the time of sale.

MR. AHMED: At the time of sale, okay.

MR. QUINN: If you will look at what I just gave you, page two it says "the underlying automated schema?" On page three, under item two, in regards to standby power generation for non-essential systems, go to the next paragraph, it says "underlying automated schema capability."

The city of San Diego, the county of San Diego, is now looking at these particular modeling capabilities. And in that context, the next few pages, if you look at the bottom line, it says CBS 2012. CBS 2012 stands for the Cypher Building System that is proposed or the entire national tool for the United States.

And the standard integrator models or methodologies, in that context, beyond push, is an attempt to standardize, at some point of convergence, in the age of convergence and

consolidation, how this is all going to come about. And all of the questions that I heard today is essentially covered in the next three pages.

And because San Diego is the key major city in the state of California under project 2000, please incorporate this in your minutes. Thank you.

MS. BENNINGFIELD: Okay, thank you. Are there any other comments about retrofit ordinances? Sounds like we got some very good ideas and this is a very good path.

That's our last topic. So we would like to open the floor for any other ideas that we haven't covered today, and then we'll wrap it up.

MR. DUDLEY: Yes, Paul Dudley with Bristolite Industries. I'm still, I guess, unclear about maximized daylighting on the chart here for retail buildings. And we have only grocery checked and not warehouses. The 2005 only covers newer construction, is that correct?

MS. BENNINGFIELD: It -- I wish Bill were here. There's some question on interpretation in the case of alteration. For example, if you have an unconditioned warehouse,

you install lighting, the lighting is regulated because unconditioned spaces are now regulated in 2005.

But then if you don't have heating and air, theoretically the envelope is not yet regulated. so then when you add the heating and air system then do you have to go and cut in a skylight? Or do you have to do some sort of performance run to justify that you don't need the skylight?

MR. DUDLEY: Okay.

MS. BENNINGFIELD: So, you know, I know that doesn't fully answer your question, but just to let you know that there are some outstanding issues with the implementation on the skylight issue for 2005. And they are supposed to apply to new buildings, but that's not to say that in certain cases they might not apply to existing buildings.

MR. DUDLEY: I understand that, and that has to do with mostly warehouses, right? But what about the other retail, it deals with them also?

MS. BENNINGFIELD: Yes, any building that meets the 15,000 foot 25,000 square foot criteria. It does it regardless of the occupancy

for the 2005.

Now, for the purposes of our table, basically we're open to suggestions. You've said retail should be included, so we'll look at that. And any other occupancies where skylights are typically cost-effective that we've overlooked, we would like to know about that as well.

MR. DUDLEY: Well, of course only factories that are -- I'm sorry, as having one and a half watts per square foot, like those.

MS. BENNINGFIELD: Do you deal with the residential market at all?

MR. DUDLEY: I don't personally, no.

MS. BENNINGFIELD: Okay, because we had a comment that typically in residences they actually end up using energy instead of saving energy, in a lot of cases.

MR. DUDLEY: Quite possible.

MS. BENNINGFIELD: So we have to be very careful when we look at daylighting and particularly top lighting in residences.

MR. DUDLEY: Right. Thank you.

MS. BENNINGFIELD: Okay. Any other open issues to discuss?

MR. QUINN: Can I finish up one item,

when I got interrupted. Item 1.02, because that's exactly why we're here today, if I could just --. Item 01.02, web services flow language. There's been a dramatic change in that particular reference.

And anything and everything you've read over the last 24 months with respect to web services between CORBA and the ORB languages have now been subject to a very dramatic issue that was incorporated into the computer web services of October 2003, defining inter-operability.

And it sets forth the very precise nature of the messaging we're all going to be concerned with in the convergence between old buildings and new buildings. So anything to do with the eventual equalization, which is the charter of the national tool to accomplish, is incorporated in this magazine as it relates to web services.

So please go to your local library if you don't subscribe to this particular IEEE computer society. And it's listed on page -- well, there's three or four pages here, but in particular the realtime symposium on embedded technology will be held in Toronto, Canada on May

25th through the 28th next year.

But the particulars of the orchestration of web services is on page 46. Everything I have discussed here today for control management of systems on a chip, for those that have yet to be installed either proposed, new, or in those that are to be completely retrofitted. And turning software into a service, as I have known it in the past 47 years in the work I have been doing in advanced standards.

And then the particular item, web services flow language and semantics, which our friends at Microsoft notified the entire world would be cut off as of June 30th, 2002. This now defines, on page 35, --

MR. CENICEROS: Mr. Quinn, I'm sorry, we don't have time to go through the literature here at the table.

MR. QUINN: Well, I'm ending if I may please?

MR. CENICEROS: Okay, wrap up, and we'll refer to the publication.

MR. QUINN: This is critical. The web services to be defined in the definition on the linkage is all contained on page 35. Thank you.

MS. BENNINGFIELD: Thanks for the resource.

MR. CENICEROS: Are there any other comments about focused areas that we haven't outlined in these five that you'd like to bring to our attention, or other comments?

MR. HODGSON: Bruce, I'd like to go back to my comments kind of at the beginning of the discussion. What I really would like to see and I think would be very helpful is trying to determine where the potential energy savings can be, and Commissioner Rosenfeld brought back, it sounds like, the residential and commercial energy potential studies.

And I think it would be nice to be able to kind of lay that out and say "here's the big opportunities." On the big picture I also think we need to expand some participants. Randel mentioned CAR, Randel needs to drag them in here kicking and screaming if he can.

I think we need to invite BOMA here, because they are very important because economically they would get this, they would understand that this is good for their membership. I don't know if they'd go along with it

politically, but economically it makes sense.

And then I think my perception is this is a very big thing to do. We haven't been able to crack this nut for a long time. So we have to start simply. I like the Big Six idea, or maybe it's the Big Three.

If you're going to propose some kind of legislation it's got to be very simple, and then at the same time do the end-around, and that is get some model ordinances going, and get some voluntary participation so you can say it can be done, here's some successes.

And we'd love to help you with that part, because we think we're pretty good at that. So that's just kind of global comments, but right now I'm still looking for what the low-hanging fruit are. I don't think we have our hands exactly around what those are.

Now we can guess what they are, but it would be really nice to nail them right through that saturation or that potential energy efficiency study, because the Legislature is going to demand that. They're going to say "if we did this, this, and this, I want to know what kind of megawatt savings we're going to get."

That's what's going to drive this is how we can show them that we can prevent crises from happening that happened previously.

MR. CENICEROS: Are there other comments? We have alluded to the fact that we are exploring the idea of creating some working groups in some specific areas. We already have a number of interested parties.

I'm looking at a working group for commissioning of commercial buildings. And theoretically we could create a working group around each of these five focus areas that we just discussed. We would probably split up the ratings one into residential and commercial, so that would be six.

I just wanted to get a sense from the people in this room if you'd be interested in spending some more concerted and focused time working in one or more of these areas here, and if so we'll go ahead and look into that.

MR. RIEDEL: Can it be done by e-mail?

MR. CENICEROS: Yes, just a show of hands here? And we don't necessarily need to meet in person. We can work those details out later. Conference calling, or working by e-mail by

collaborating on documents. And so there's several people here, great, great.

So we'll go ahead and set that up. I don't think realistically we can get very much work accomplished before HMG has to have their report done, well, a draft, in the next 30 days or so. This is more like an activity that's going to go into next year, especially as we open things up to include all the voluntary types of strategies in addition to the mandatory ones.

There will be a lot more things we can look at then. What we'll then do is look at what's right next for this particular area -- controls, or commissioning, in terms of facilitating the transactions that we want to have happen and improve efficiency in existing buildings more, in the market.

As well as removing institutional barriers or transaction barriers through regulation, or even requiring specific things be done in existing buildings at certain triggers.

So, we'll get into that at the beginning of next year. So, let's see. I guess we should remind you also, these one page forms with the measures. We know they're not perfect, but we

heard a lot of feedback, specific ideas in terms of ways we can improve this in terms of adding additional things to it.

So you're invited to think about this some more, mark it up more, and send it into us or fax it to us, or leave it with us before you leave today. Also, if you haven't signed in yet, I know there were a couple of you that came in later this afternoon. We have a signup sheet outside. And that way we can notify of future activities for AB 549.

And anything else?

MS. BENNINGFIELD: Do we have any comments? Yes, Tom?

MR. HAMILTON: When do you think they'll have the draft report done? Is that January, February you're shooting for?

MR. CENICEROS: Which draft report are you referring to?

MR. HAMILTON: I guess the draft to the Legislature?

MR. CENICEROS: Okay. There's two reports to the Legislature we need to talk about. The Legislature requires a report by January 1st, 2004. And we didn't start until a year and a half

after the legislation was passed due to the peak load crisis and other programs we were doing, and lack of staff and budget and all that.

So we are going to submit an interim report by January 1st. The draft report will be considered by the Energy Commission in early December. It will be available in mid-November or so for public review. And that's basically going to just, talk about our progress essentially, and probably won't have a lot in terms of recommendations of things we can do right now.

If any of you think there are things we should recommend now that are ready for action by the Legislature, we invite you to let us know, either now or by e-mail or call us up. And we'll consider those things. But we're very early in the process of our analysis, so we don't expect there to be --

MR. HAMILTON: Tom Hamilton. The point that Michael brought up about beginning or re-beginning, I guess, the phase two HERS regulations for existing housing. I mean, that's not dependent upon any reports or anything like that.

And that could be something you could put into your interim report, saying long-term,

short-term strategies, and here are things that we've already begun. As opposed to saying "well, we've got to wait until next year to start some stuff."

MR. CENICEROS: I think I can guarantee you we'll say something about the need to finish the HERS process.

(laughter)

I don't know if we'll be asking the Legislature to write a bill or making us another bill already telling us what to do, but --

MR. HAMILTON: You're not going to put something in there about you have to have one? Every time a home is sold you require a HERS report? No?

(laughter.)

It's not selfish on my part at all, no.

MS. BENNINGFIELD: And from our end, we'll produce our final report in about 30 days. If I say it on the record then these guys are going to hold us to it, right? Very soon, yes.

MR. CENICEROS: And in the final report to the legislature, the comprehensive one that'll have a whole host of recommendations, will go to them October of 2005. There will be a draft

probably two or three months before that that we'll be working on over a period of time with lots of input from everyone. So, that's more than a year away.

MR. HAMILTON: Just a general question. Have you thought of other things that can be done -- and I don't know if you can because of the regulatory process -- implement approaches sooner than October '05? I mean, not necessarily to phase two, but particularly some local requirements or something like that.

Something sooner rather than later, you know, just because of how long the bill has been, and -- I don't know, I mean I was just wondering if there was any --

MR. CENICEROS: We think there are a lot of things that don't require action from the Legislature that we can start moving on. And we've already got some good ideas, just in the process of this first phase, that really only require talking between different parties who have control over those processes, and getting them to think about making these incremental improvements.

So, yes, there's a lot of stuff I think will spin out of this process, and I think people

can then run with those balls as we go. And we hope you will point out some of those opportunities if you are thinking of any in particular.

MR. HAMILTON: I just think it would be nice -- well, just because of, in supporting the sponsors of AB 549. Just because of the work CBIA has done on the new side, it would be nice to finally do something on the existing. And I know there's a lot of issues involved, but -- that's the only reason I was asking.

MR. CENICEROS: Cal?

MR. BROOMHEAD: I'd like to offer the city and county of San Francisco as a pilot project for anything that this group decides to move forward on. I want to lend you resources to that. I'll put some effort into collecting whatever local data we can find, and gathering the political support and trying to push something through.

MR. CENICEROS: Right, and that reminds me too, we have discussed the need for some kinds of concepts to pilot test them first. And it may be a technological thing that you're trying to test, or it may be a market system that you're

trying to test, you know, whether it would be feasible, whether it would really work.

And that's one great way to do it. And we will look at other types of things that would require pilot testing before we could ask the Legislature to require something statewide. That may not be appropriate for a local government to do, it may be a smaller or a different kind of cross-section in the market. Devra?

MS. BACHRACH: Devra Bachrach. I have a question about your next phase in this project, looking at the voluntary strategies. How does that relate to, and how are you coordinating with the process underway at the PUC now that's, I think, looking at similar issues?

MR. CENICEROS: Yes. We are going to be actively participating in their workshops, and they are holding five or so, is that right, between now and probably February or June of next year, if it goes longer.

And their process is basically to look at is there more we should be doing for energy efficiency in all facilities statewide, meaning focusing on what they have control over, which is the investor-owned utility programs.

And so there's going to be a lot of information-sharing both ways. We've been in touch with the PUC staff, and we'll be doing some studies that have some common overlap in there, and we'll both be utilizing the results of that.

We'll have to kind of see how this thing lays out, because I don't want to have a workshop that goes over all the same questions that they covered in one of their workshops too, so --

MS. BENNINGFIELD: I believe they're also, I understood they're looking statewide, not just the IOU's. I know that Commissioner Kennedy cued it up that way.

MR. CENICEROS: Good, good. So we will be looking at it. Thanks for bringing that to our attention. Any other comments? Questions?

We'd like to thank you once more for coming and giving us your valuable time, and check our website for the transcripts if you want to look that over, and the draft of the next HMG report in about a month, a month and a half or so.

MR. RIEDEL: And there'll be an e-mail list of everybody's e-mail who attended available.

VOICE: I believe it's posted on the website.

MR. RIEDEL: Okay, great, great.

MR. CENICEROS: Yes. Okay, thank you.

Drive carefully. We're off the record.

(Thereupon the workshop ended at 4:45 p.m.)

CERTIFICATE OF REPORTER

I, ALAN MEADE, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing California Energy Commission Workshop; that it was thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said workshop, nor in any way interested in outcome of said workshop.

IN WITNESS WHEREOF, I have hereunto set my hand this 27th day of October, 2003.